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DIVERSITY MANAGEMENT IN CONSTRUCTION

THIS BOOK IS ELEMENT OF:
CONSTRUCTION
MANAGERS'
LIBRARY

M23: DIVERSITY MANAGEMENT IN CONSTRUCTION

DIVERSITY MANAGEMENT IN CONSTRUCTION

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Germany, Iceland, Poland, 2017

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This manual is part of the Construction Managers' Library – a set of books related to the wide area of management in construction. The books were created within the Leonardo da Vinci (LdV) projects No: PL/06/B/F/PP/174014; 2009-1-PL1-LEO05-05016, 2011-1-PL1-LEO05-19888, and ERASMUS+ project No: 2015-1-PL01-KA202-016454, entitled: “COMMON LEARNING OUTCOME FOR EUROPEAN MANAGERS IN CONSTRUCTION, phases I, II, III and IV – CLOEMC)”. Warsaw University of Technology, Civil Engineering Faculty, Department of Construction Engineering and Management was the Promoter of the Projects.

The following organisations were Partners in the CLOEMC I Project:

- Association of Building Surveyors and Construction Experts (Belgium),
- Universidad Politécnica de Valencia (Spain),
- Chartered Institute of Building Ireland (Ireland),
- Polish Association of Building Managers (Poland),
- Polish British Construction Partnership Sp. z o.o. (Poland),
- University of Salford (Great Britain),
- Chartered Institute of Building (Great Britain).

The objective of this project was to create first, seven manuals conveying all the information necessary to develop civil engineering skills in the field of construction management.

The following manuals have been developed in CLOEMC I (in the brackets you will find an estimate of didactic hours necessary for mastering the contents of a given manual):

M1: PROJECT MANAGEMENT IN CONSTRUCTION (100),

M2: HUMAN RESOURCE MANAGEMENT IN CONSTRUCTION (100),

M3: PARTNERING IN CONSTRUCTION (100),

M4: BUSINESS MANAGEMENT IN CONSTRUCTION ENTERPRISE(100),

M5: REAL ESTATE MANAGEMENT (100),

M6: ECONOMY AND FINANCIAL MANAGEMENT
IN CONSTRUCTION (240),

M7: CONSTRUCTION MANAGEMENT (100).

The manuals created for the purposes of the library are available in three languages: Polish, Spanish and English. The manuals may be used as didactic materials for students of postgraduate courses and regular studies in all three languages. Graduates from the courses will receive a certificate, which is recognized by all organisations – members of the AEEBC, association of construction managers from over a dozen European countries.

Polish representative in the AEEBC is the Polish Association of Building Managers, in Warsaw.

Partners of the CLOEMC II project were:

- Technische Universität Darmstadt (Germany),

- Universida de do Minho (Portugal),
- Chartered Institute of Building (Great Britain),
- Association of European Building Surveyors and Construction Experts (Belgium),
- Polish British Construction Partnership (Poland),

Within the second part of the project the following manuals were developed:

M8: RISK MANAGEMENT (130)

M9: PROCESS MANAGEMENT – LEAN CONSTRUCTION (90),

M10: COMPUTER METHODS IN CONSTRUCTION (80),

M11: PPP PROJECTS IN CONSTRUCTION (80),

M12: VALUE MANAGEMENT IN CONSTRUCTION (130),

M13: CONSTRUCTION PROJECTS – GOOD PRACTICE (80),

The manuals were prepared in four languages: Polish, Portuguese, German and English.

Partners of the CLOEMC III project were:

- Technische Universität Darmstadt (Germany),
- Universida de do Minho (Portugal),
- Chartered Institute of Building (Great Britain),
- Thomas More Kempen University (Belgium),
- Association of European Building Surveyors and Construction Experts (Belgium),
- Polish Association of Building Managers (Poland).

Within the third part of the project the following manuals were developed:

M14: DUE-DILIGENCE IN CONSTRUCTION (100),

M15: MOTIVATION AND PSYCHOLOGY ASPECTS IN CONSTRUCTION INDUSTRY (100),

M16: PROFESSIONALISM AND ETHICS IN CONSTRUCTION (100),

M17: SUSTAINABILITY IN CONSTRUCTION (100),

M18: HEALTH AND SAFETY IN CONSTRUCTION (100),

M19: MANAGING BUILDING PATHOLOGY AND MAINTENANCE (100).

The manuals were prepared in five languages: Polish, Portuguese, German, French and English.

Partners of the CLOEMC IV project were:

- Technische Universität Darmstadt (Germany),
- Reykjavik University (Iceland),
- Chartered Institute of Building (Great Britain),
- AWBUD S.A. (Poland),
- Association of European Building Surveyors and Construction Experts (Belgium/Great Britain),
- Polish Association of Building Managers (Poland).

Within the fourth part of the project the following manuals were developed:

M20: REVITALISATION AND REFURBISHMENT IN
CONSTRUCTION (100),

M21: BUILDING INFORMATION MODELING – BIM (120),

M22: OPTIMISATION OF CONSTRUCTION PROCESSES (120),

M23: DIVERSITY MANAGEMENT IN CONSTRUCTION (100),

M24: MECHANICS OF MATERIALS AND STRUCTURES
FOR CONSTRUCTION MANAGERS (120),

M25: CSR - CORPORATE SOCIAL RESPONSIBILITY
IN CONSTRUCTION (100).

The manuals were prepared in three languages: Polish, German and English (and additionally English version with summary in Icelandic language).

The scope of knowledge presented in the manuals is necessary in activities of managers - construction engineers, managing undertakings in the conditions of the modern market economy. The manuals are approved by the European AEEBC association as a basis for recognising manager qualifications. Modern knowledge in the field of management in construction, presented in the manuals, is one of prerequisites to obtain EurBE (European Building Expert) cards, a professional certificate documenting the qualification level of a construction manager in EU. The manuals are designated for managers - construction engineers, students completing postgraduate studies “Management in construction” and students completing construction studies. Postgraduate studies got a recognised program, and graduates receive certificates recognised by 17 national organisations, members of AEEBC.

More information:

- about the project: www.cloemcIV.il.pw.edu.pl

- about the EURBE CARD: www.aeebc.org

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CHAPTER 1

INTRODUCTION – LEARNING OUTCOMES

(P. NOWAK)

Manual Diversity Management in Construction shows clearly the complexity of project's management within construction industry. Different types of projects, many various types participants at different stages of the project, many management styles, methods and techniques – all influence aims and results of the projects.

Reader of the second chapter will recognize modern management methods, like: agile management, its basic definitions and techniques (scrum method, brainstorming), or optimization of management via lean construction method.

Chapter 3 presents intercultural aspects of construction and gives: definitions of culture, multiculturalism and interculturalism, definitions of construction management as an interdisciplinary cross-section task and learning process of intercultural competence.

Construction managers reading chapter 4 will recognise main elements of gender aspects in construction, including womens carrier paths in construction industry, unique competences of women, advantages and factors influencing women work in construction.

Chapter 5 shows elements of communication skills necessity in construction, including types (formal, informal and unofficial) of communication chanel, their importance, also how to perform communication audits in construction companies.

Chapter 6 consists set of case studies case studies showing position of female employees in construction industry.

CHAPTER 2

AGILE PROJECT MANAGEMENT

(T. V. FRIDGEIRSSON)

2.1 INTRODUCTION

The traditional project management discipline was defined around the middle of last century. It is based upon the idea of rigorous planning by segmenting the project into work packages and the development of a project cost baseline which serves as a monitoring tool to investigate the health of the project. The manager is called Project Manager and his role is to arrange the planning procedure and take care of daily management and control.

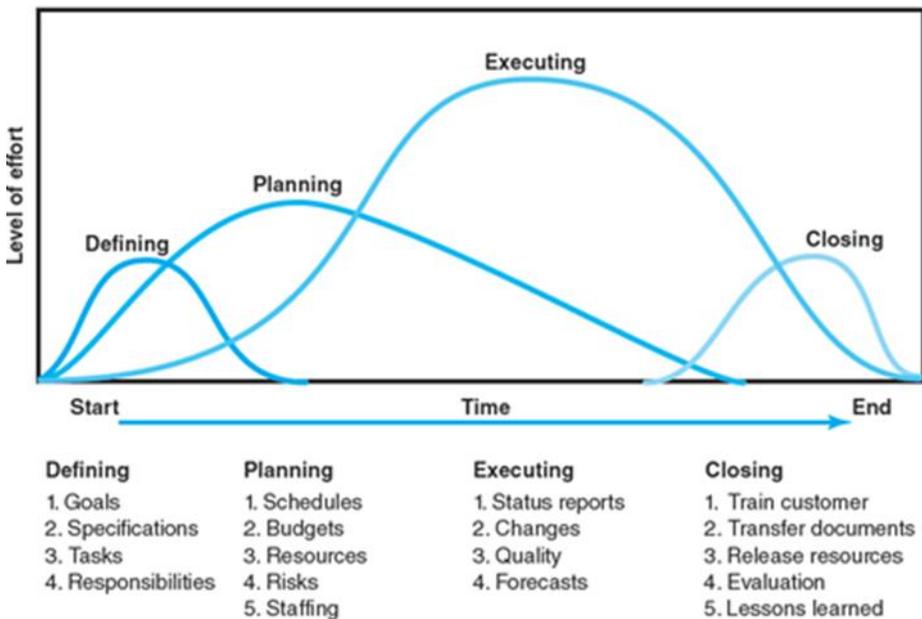


Figure 2.1. The traditional project lifecycle

The main principles of conventional project management are roughly as follows:

- Scope the project by defining business case, constraints etc.
- Define objectives that are quantitative (measurable)
- Prepare a WBS (Work Breakdown Structure) and align it with the OBS (Organization Structure for the project)
- Do time based schedule and allocate resources to acquire the Cost Baseline
- Do a risks assessment
- Define the monitoring and tracking system e.g. by Earned Value
- Define Change management system
- Close down of project

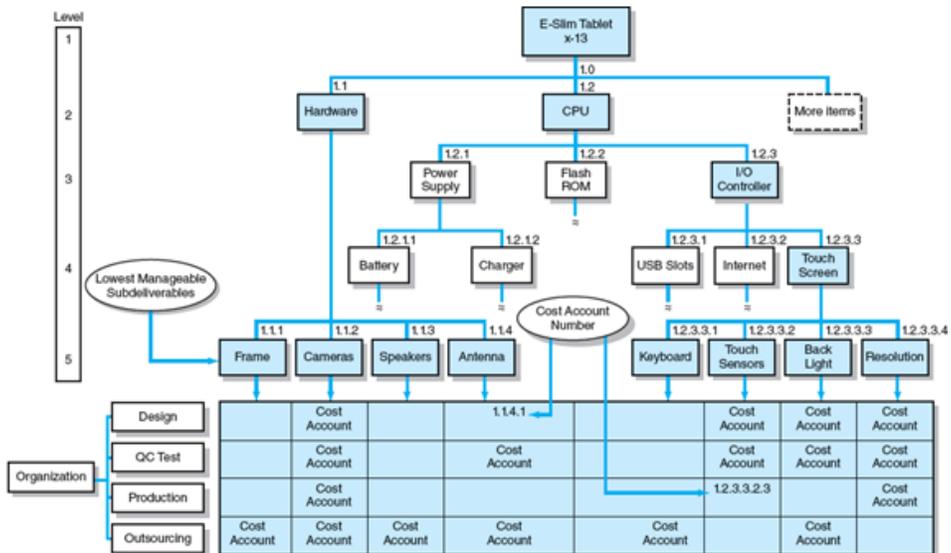


Figure 2.2. Typical WBS/OBS structure of a middle/large sized projects

The traditional approach assumes that the planners have detailed information regarding the project specifications. The outcome should be relatively certain. As an example the construction of a house were all drawings and the quantities of the needed resources are accessible should in theory not be subject to high uncertainty. These projects are often familiar to the participants and surprises are few. The client has clearly specified goals and the project team has defined how to reach those goals.

However, most projects in contemporary business life are not like that (some research say 80%). The project stakeholders might know the goals but the solution is not clear. Changes are frequently forwarded to the project team and detailed long horizon planning therefore next to impossible.

Agile processes are commonly used for product development and projects with relatively high uncertainty. Scrum is a project management framework that is applicable to any project with aggressive deadlines, complex requirements and a degree of uniqueness. In Scrum, projects move forward via a series of iterations called sprints. Each sprint is typically two to four weeks long.

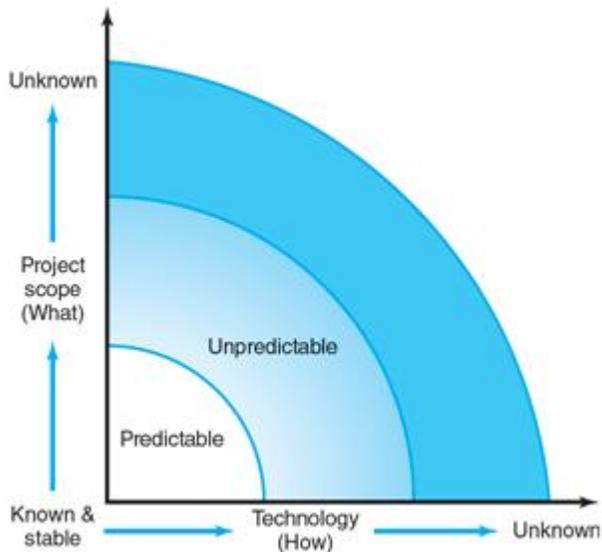


Figure 2.3. Adaptive methods are applied when goals are clear but the solution not

Traditional project managers usually take on a great deal of responsibility. They are responsible for managing scope, cost, quality, personnel, communication, risk, procurement and more.

Agile project management often puts the traditional project manager in a difficult position. He or she is told, for example, to make scope/schedule tradeoff decisions knowing that a product manager or customer might second-guess those decisions if the project goes poorly.

Agile acknowledges this difficult position, and distributes the traditional project manager's responsibilities. What is agile about this new paradigm is that many of these duties, such as task assignment and day-to-day project decisions, revert back to the team, where they rightfully belong.

Responsibility for scope and schedule tradeoff goes to the product owner. Quality management becomes a responsibility shared among the team, a product owner and Scrum- master. Other traditional tasks are distributed as well among a team's agile project management roles.

2.2 INTRO TO AGILE MANAGEMENT

Management is rapidly changing towards being adaptive to the circumstances. That does not mean that conventional methods are redundant. This simply means that managers and leaders must familiarize themselves with procedures that are, in many cases, more adaptive than strategic.

This text is primarily about Agile project management but also addresses briefly other interesting management ideas.

By reading this text you should have a decent introduction to some of the management topics that are currently promoted as cutting edge in the world of leadership and management.

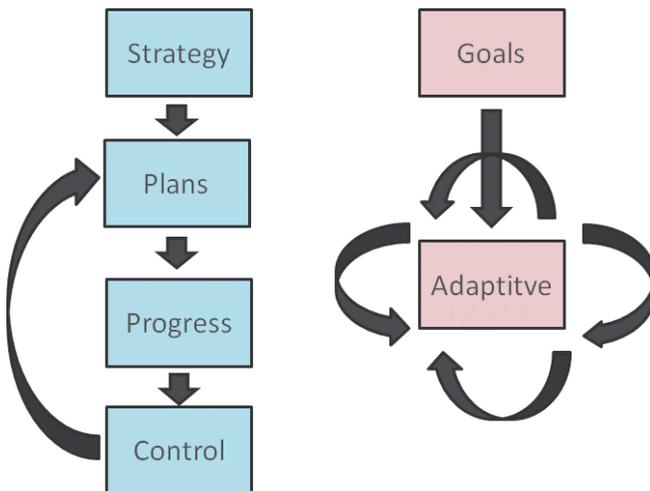


Figure 2.4. The paradigm from the strategic process to the adaptive process

2.3 SCRUM OVERVIEW – INTRODUCTION TO SCRUM TERMS

An introduction to Scrum would not be complete without knowing the Scrum terms you'll be using. This section in the Scrum overview will discuss common concepts in Scrum.

Scrum team: A typical scrum team has between five and nine people, but Scrum projects can easily scale into the hundreds. However, Scrum can easily be used by one-person teams and often is. This team does not include any of the traditional engineering roles such as programmer, technician, designer, tester or architect. Everyone on the project works together to complete the set of work they have collectively committed to complete within a sprint. Scrum teams develop a deep form of camaraderie and a feeling that “we’re all in this together.”

Product owner: The product owner is the project’s key stakeholder and represents users, customers and others in the process. The product owner is often someone from product management or marketing, a key stakeholder or a key user.

Scrum-master: The Scrum-master is responsible for making sure the team is as productive as possible. The Scrum-master does this by helping the team use the Scrum process, by removing impediments to progress, by protecting the team from outside, and so on.

Product backlog: The product backlog is a prioritized features list containing every desired feature or change to the product. Note: The term “backlog” can get confusing because it’s used for two different things. To clarify, the product backlog is a list of desired features for the product. The sprint backlog is a list of tasks to be completed in a sprint.

Sprint planning meeting: At the start of each sprint, a sprint planning meeting is held, during which the product owner presents the top items on the product backlog to the team. The Scrum team selects the work they can complete during the coming sprint. That work is then moved from the product backlog to a sprint backlog, which is the list of tasks needed to complete the product backlog items the team has committed to complete in the sprint.

Daily Scrum: Each day during the sprint, a brief meeting called the daily scrum is conducted. This meeting helps set the context for each day's work and helps the team stay on track. All team members are required to attend the daily scrum.

Sprint review meeting: At the end of each sprint, the team demonstrates the completed functionality at a sprint review meeting, during which, the team shows what they accomplished during the sprint. Typically, this takes the form of a demonstration of the new features, but in an informal way; for example, PowerPoint slides are not allowed. The meeting must not become a task in itself nor a distraction from the process.

Sprint retrospective: Also at the end of each sprint, the team conducts a sprint retrospective, which is a meeting during which the team (including its Scrum-master and product owner) reflect on how well Scrum is working for them and what changes they may wish to make for it to work even better.

Graphically, Scrum looks something like this:

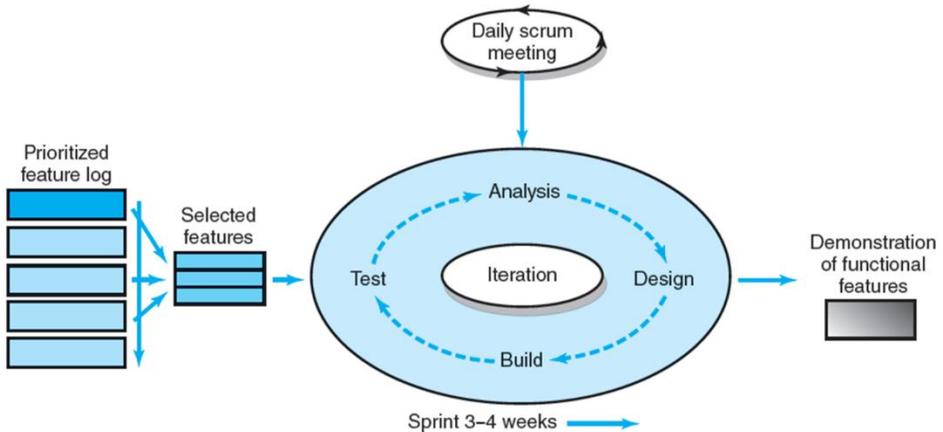


Figure 2.5. The Scrum Process

This graphic is an introduction to the essential elements of using Scrum for development projects. On the left, we see the product backlog, which has been prioritized by the product owner and contains everything desired in the product that's known at the time. The three to four week sprints are shown by the larger circle.

At the start of each sprint, the team selects some amount of work from the product backlog and commits to completing that work during the sprint. Part of figuring out how much they can commit to is creating the sprint backlog, which is the list of tasks (and an estimate of how long each will take) needed to deliver the selected set of product backlog items to be completed in the sprint.

At the end of each sprint, the team produces a potentially shippable product increment — i.e. working, high-quality product. Each day during the sprint, team members meet to discuss their progress and any impediments to completing the work for that sprint. This is known as the daily scrum, and is shown as the smaller circle above.

2.4 SPRINT PLANNING MEETING

In Scrum, the sprint planning meeting is attended by the product owner, Scrummaster and the entire Scrum team. Outside stakeholders may attend by invitation of the team, although this is rare in most companies.

During the sprint planning meeting, the product owner describes the highest priority features to the team. The team asks enough questions that they can turn a high-level user story of the product backlog into the more detailed tasks of the sprint backlog.

The product owner doesn't have to describe every item being tracked on the product backlog. A good guideline is for the product owner to come to the sprint planning meeting prepared to talk about two sprint's worth of product backlog items. To make an example really simple, suppose a team always finishes five product backlog items. Their product owner should enter the meeting prepared to talk about the application.

There are two defined artifacts that result from a sprint planning meeting:

1. A sprint goal
2. A sprint backlog

A sprint goal is a short, one- or two-sentence, description of what the team plans to achieve during the sprint. It is written collaboratively by the team and the product owner. The following are example sprint goals on a software application:

1. Implement basic shopping cart functionality including add, remove, and update quantities.
2. Develop the checkout process: pay for an order, pick shipping, order gift wrapping, etc.

The sprint goal can be used for quick reporting to those outside the sprint. There are always stakeholders who want to know what the team is working on, but who do not need to hear about each product backlog item (user story) in detail. The success of the sprint will later be assessed during the sprint review meeting against the sprint goal, rather than against each specific item selected from the product backlog.

The sprint backlog is the other output of sprint planning. A sprint backlog is a list of the product backlog items the team commits to delivering plus the list of tasks necessary to delivering those product backlog items. Each task on the sprint backlog is also usually estimated.

An important point to reiterate here is that it's the team that selects how much work they can do in the coming sprint. The product owner does not get to say, *"We have four sprints left so you need to do one-fourth of everything I need."* We can hope the team does that much (or more), but it's up to the team to determine how much they can do in the sprint.

2.5 DAILY SCRUM MEETING

In Scrum, on each day of a sprint, the team holds a daily scrum meeting called the "daily scrum." Meetings are typically held in the same location and at the same time each day. Ideally, a daily scrum meeting is held in the morning, as it helps set the context for the coming day's work. These scrum meetings are strictly time-boxed to 15 minutes. This keeps the discussion brisk but relevant.

There is an old joke in which a chicken and a pig are talking that illustrates a key concept in the daily scrum ...

Chicken: "Let's start a restaurant."

Pig: "Good idea, but what should we call it?"

Chicken: "How about 'Ham and Eggs'"

Pig: "No thanks. I'd be committed, you'd only be involved."

The joke is meant to point out the difference between those who are committed on a project and those who are only involved. Scrum affords special status to those who are committed, and many teams enforce a rule in which only those who are committed are allowed to talk during the daily scrum meeting.

All team members are required to attend scrum meetings. Since both the Scrum-master and product owner are committed team members, they are expected to attend and participate. Anyone else (for example, a departmental VP, a salesperson or a developer from another project) is allowed to attend, but is there only to listen. This makes scrum meetings an excellent way for a Scrum team to disseminate information -- if you're interested in hearing where things are at, attend that day's meeting.

The daily scrum meeting is not used as a problem-solving or issue resolution meeting. Issues that are raised are taken offline and usually dealt with by the relevant subgroup immediately after the meeting. During the daily scrum, each team member answers the following three questions:

1. What did you do yesterday?
2. What will you do today?
3. Are there any impediments in your way?

By focusing on what each person accomplished yesterday and will accomplish today, the team gains an excellent understanding of what work has been done and what work remains. The daily scrum meeting is not a status update meeting in which a boss is collecting information about who is behind schedule. Rather, it is a meeting in which team members make commitments to each other.

If a project participant stands up and says, *"Today, I will finish the cellar layout for the C-building,"* everyone knows that in tomorrow's meeting, he will say whether or not he finished. This has the wonderful effect of helping a team realize the significance of these commitments, and that their commitments are to one another, not to some far-off customer or salesman.

Any impediments that are raised in the scrum meeting become the Scrum-master's responsibility to resolve as quickly as possible. Typical impediments are:

- My ____ broke and I need a new one today.
- I still haven't got the software I ordered a month ago.
- I need help fixing a problem with _____.
- I'm struggling to learn _____ and would like to pair with someone on it.
- I can't get the vendor's tech support group to call me back.
- Our new contractor can't start because no one is here to sign her contract.
- I can't get the ____ group to give me any time and I need to meet with them.
- The department chef has asked me to work on something else "for a day or two."

In cases where the Scrum-master cannot remove these impediments directly himself (e.g., usually the more technical issues), he still takes responsibility for making sure someone on the team does quickly resolve the issue.

The vast majority of teams conduct the daily scrum meeting by having each person answer the three questions in order. You answer all three, then the next person, the next and so on. An interesting alternative that some teams find helpful is to talk through one product backlog item before moving on to the next. In this way, an individual may give an update at multiple different times during the same meeting

2.6 RELEASE BURNDOWN CHART

Progress on a Scrum project can be tracked by means of a release burndown chart. The Scrum-master should update the release burndown chart at the end of each sprint.

The horizontal axis of the sprint burndown chart shows the sprints; the vertical axis shows the amount of work remaining at the start of each sprint. Work remaining can be shown in whatever unit the team prefers -- story points, ideal days, team days and so on.

On the burndown chart pictured below, the team started a project that was planned to be 20 days. They began with little below 800 h of estimated work. As you can see, the team in this scenario pulled in too much work initially into the sprint backlog, and still had nearly 600 hours to go on day 13 of a 20-day sprint. The product owner was consulted and agreed to remove some user stories from the sprint. This resulted in the big drop on the chart between days 13 and 14. From there, the team made consistent progress and finished the Scrum sprint successfully

This type of release burndown chart works very well in many situations and for many teams. However, on projects with lots of changing requirements, you may want to look at an alternative release burndown chart as a way of keeping your agile project on track.

The burndown chart is an essential part of any agile project and is a way for the team to clearly see what is happening and how progress is being made during each sprint.

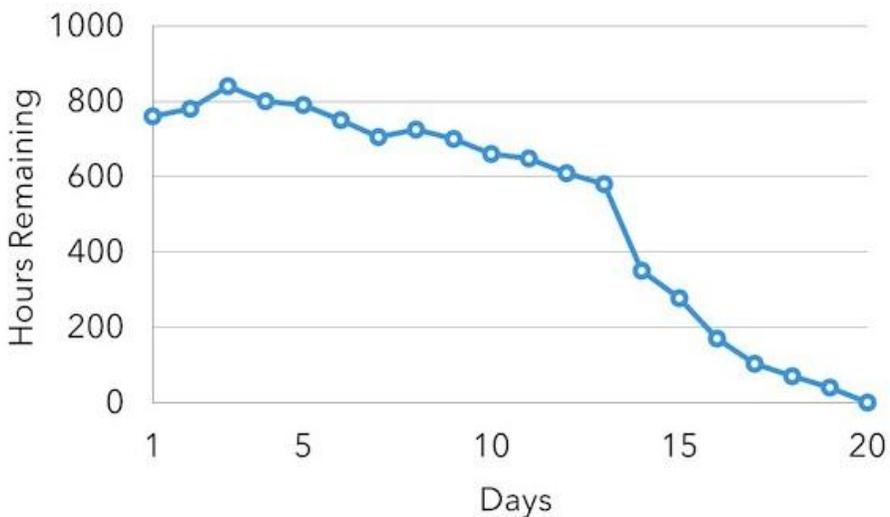


Figure 2.6. A Burn Down Chart

2.7 PRODUCT OWNER

The Scrum product owner is typically a project's key stakeholder. Part of the product owner responsibilities is to have a vision of what he or she wishes to build, and convey that vision to the scrum team. This is key to successfully starting any agile development project. The agile product owner does this in part through the product backlog, which is a prioritized features list for the product.

The product owner is commonly a lead user of the system or someone from marketing, product management or anyone with a solid understanding of users, the market place, the competition and of future trends for the domain or type of system being developed.

This, of course, varies tremendously based on what the team is developing. The key is that the person in the product owner role needs to have a vision for what is to be built.

Although the agile PO prioritizes the product backlog during the sprint planning meeting, the team selects the amount of work they believe they can do during each sprint, and how many sprints will be required.

The product owner does not get to say, *"We have four sprints left, therefore you must do one-fourth of the product backlog this sprint."* The Scrum product owner's job is to motivate the team with a clear, elevating goal. Team members know best what they are capable of, and so they select which user stories from the top of the product backlog they can commit to delivering during any sprint.

In return for the Scrum team's commitment to completing the selected user stories from the top of the product backlog, the product owner makes a reciprocal commitment to not throw new requirements at the team during the sprint. Requirements are allowed to change (and change is encouraged) but only outside the sprint. Once the team starts on a sprint, it remains maniacally focused on the goal of that sprint.

The product owner role requires an individual with certain skills and traits, including availability, business savvy and communication skills. First, the Scrum product owner needs to be available to his or her team. The best product owners

show commitment by doing whatever is necessary to build the best product possible – and that means being actively engaged with their teams.

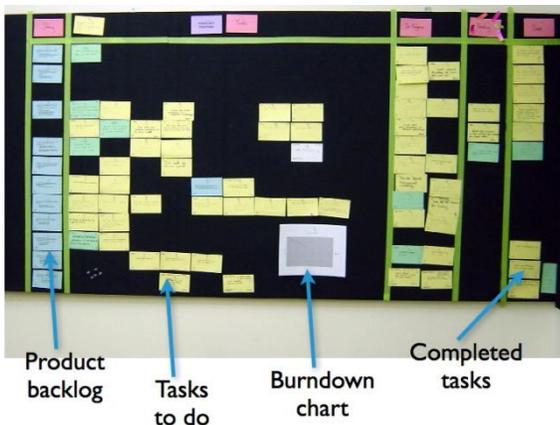
Business savvy is important for the agile product owner because he or she is the decision maker regarding what features the product will have. That means, the agile PO should understand the market, the customer and the business in order to make sound decisions.

Finally, communication is a large part of the product owner responsibilities. The product owner role requires working closely with key stakeholders throughout the organization and beyond, so he or she must be able to communicate different messages to different people about the project at any given time.

2.8 VISUAL MANAGEMENT SYSTEM (AGILE TASK BOARD)

When practicing Scrum, we can make the sprint backlog visible by putting it on a Scrum task board. Team members update the task board continuously throughout the sprint; if someone thinks of a new task (“Add a balcony to the East side of the building), she writes a new card and puts it on the wall. Either during or before the daily scrum, estimates are changed (up or down), and cards are moved around the board.

As an example, the Agile-board looks like this:



Each row on the Scrum board is a user story, which is the unit of work we encourage teams to use for their product backlog. During the sprint planning meeting, the team selects the product backlog items they can complete during the coming sprint. Each product backlog item is turned into multiple sprint backlog items. Each of these is represented by one task card that is placed on the Scrum-board. Each task card starts on the Scrum task-board in the “To Do” column. The columns we generally use on a task-board are:

- **Story:** The story description (“As a user we want to...”) shown on that row.
- **To Do:** Place for all cards that are not in the “Done” or “In Process” columns for the current sprint.
- **Work In Progress:** Any card being worked on goes here. The team member who chooses to work on it moves it over when she's ready to start the task. Often, this happens during the daily scrum when someone says, “I'm going to work on the pre-design today.”
- **To Verify:** A lot of tasks have corresponding test task cards. So, if there's a “Test the proto-type” card, there is likely one or more task cards related to testing.
- **Done:** Cards pile up over here when they're done. They're removed at the end of the sprint. Sometimes we remove some or all during a sprint if there are a lot of cards.
- Optionally, we sometimes use the following columns on a Scrum task board, depending on the team, the culture, the project and other considerations:
- **Notes:** Just a place to jot a note or two.

Story	To Do	In Process	To Verify	Done
As a user, I... 8 points	Code the... 9 Code the... 2 Test the... 8	Test the... 8 Code the... 8 Test the... 4	Code the... DC 4 Test the... SC 8	Test the... SC 6 Code the... SC 8 Test the... SC 8 Test the... SC 6
As a user, I... 5 points	Code the... 8 Code the... 4	Test the... 8 Code the... 6	Code the... DC 8	Test the... SC 6 Test the... SC 6 Test the... SC 6

Figure 2.7. A typical VMS table used in Agile

2.9 SCRUM-MASTER

What is a Scrum Master? The Scrum-master is responsible for making sure a Scrum team lives by the values and practices of Scrum. The Scrum-master is often considered a coach for the team, helping the team do the best work it possibly can. The Scrum-master can also be thought of as a process owner for the team, creating a balance with the project's key stakeholder, who is referred to as the product owner.

The Scrum-master does anything possible to help the team perform at their highest level. This involves removing any impediments to progress, facilitating meetings, and doing things like working with the product owner to make sure the product backlog is in good shape and ready for the next sprint. The Scrum-master role is commonly filled by a former project manager or a technical team leader but can be anyone.

The Scrum-master is also often viewed as a protector of the team. The most common example is that the Scrum-master protects the team by making sure they do not over-commit themselves to what they can achieve during a sprint due to pressure from an overly aggressive product owner. However, a good Scrum-master also protects the team from complacency.

What is a Scrum Master role and how does it fit into the project? Many who are new to the Scrum-master role struggle with the apparent contradiction of the Scrum-master as both a servant-leader to the team and also someone with no authority. The seeming contradiction disappears when we realize that although the Scrum-master has no authority over Scrum team members, the Scrum-master does have authority over the process. Although a Scrum-master may not be able to say, *“You’re fired,”* a Scrum-master can say, *“I’ve decided we’re going to try two-week sprints for the next month.”*

The Scrum Master is there to help the team in its use of Scrum. Think of the help from a Scrum-master as similar to a personal trainer who helps you stick with an exercise regimen and perform all exercises with the correct form. A good trainer will provide motivation while at the same time making sure you don’t cheat by skipping a hard exercise. The trainer’s authority, however, is limited. The trainer cannot make you do an exercise you don’t want to do. Instead, the trainer reminds you of your goals and how you’ve chosen to meet them. To the extent that the trainer does have authority, it has been granted by the client. Scrum-masters are much the same: They have authority, but that authority is granted to them by the team.

A Scrum-master can say to a team, *“Look, we’re supposed to deliver potentially usable product at the end of each sprint. We didn’t do that this time. What can we do to make sure we do better the next sprint?”* This is the Scrum-master exerting authority over the process; something has gone wrong with the process if the team has failed to deliver something potentially shippable.

But because the Scrum-master’s authority does not extend beyond the process, the same Scrum-master should not say, *“Because we failed to deliver something potentially shippable the last sprint, I want Benni to review all code before it gets checked in.”* Having Benni review the code might be a good idea, but the decision is not the Scrum-master’s to make. Doing so goes beyond authority over the process and enters into how the team works.

With authority limited to ensuring the team follows the process, the Scrum-master’s role can be more difficult than that of a typical project manager. Project managers often have the fallback position of “do it because I say so.” The

times when a Scrum-master can say that are limited and restricted to ensuring that Scrum is being followed.

2.10 SPRINT BACKLOG

The sprint backlog is a list of tasks identified by the Scrum team to be completed during the Scrum sprint. During the sprint planning meeting, the team selects some number of product backlog items, usually in the form of user stories, and identifies the tasks necessary to complete each user story. Most teams also estimate how many hours each task will take someone on the team to complete.

User Story	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	...
As a member, I can read profiles of other members so that I can find someone to date.	Code the ...	8	4	8	0		
	Design the ...	16	12	10	4		
	Meet with Mary about ...	8	16	16	11		
	Design the UI	12	6	0	0		
	Automate tests ...	4	4	1	0		
	Code the other ...	8	8	8	8		
As a member, I can update my billing information.	Update security tests	6	6	4	0		
	Design a solution to ...	12	6	0	0		
	Write test plan	8	8	4	0		
	Automate tests ...	12	12	10	6		
	Code the ...	8	8	8	4		

Figure 2.8. A Sprint Backlog with User stories, tasks and estimates

It's critical that the team selects the items and size of the sprint backlog. Because they are the people committing to completing the tasks, they must be the people to choose what they are committing to during the Scrum sprint.

The sprint backlog is commonly maintained as a spreadsheet, but it is also possible to use your defect tracking system or any of a number of software products designed specifically for Scrum or agile. An example of a sprint backlog in a spreadsheet looks like the one above.

During the Scrum sprint, team members are expected to update the sprint backlog as new information is available, but minimally once per day. Many teams will do this during the daily scrum. Once each day, the estimated work remaining in the sprint is calculated and graphed by the Scrum-master, resulting in a sprint burndown chart like the one mentioned earlier in this text.

The team does its best to pull the right amount of work into the Scrum sprint, but sometimes too much or too little work is pulled in during planning. In this case, the team needs to add or remove tasks.

2.11 SCRUM PRODUCT BACKLOG

The agile product backlog in Scrum is a prioritized features list, containing short descriptions of all functionality desired in the product. When applying Scrum, it's not necessary to start a project with a lengthy, upfront effort to document all requirements. Typically, a Scrum team and its product owner begin by writing down everything they can think of for agile backlog prioritization. This agile product backlog is almost always more than enough for a first sprint. The Scrum product backlog is then allowed to grow and change as more is learned about the product and its customers.

A typical Scrum backlog comprises the following different types of items:

- Features desired for the product
- Risk factors
- Technical work
- Knowledge acquisition

By far, the predominant way for a Scrum team to express features on the agile product backlog is in the form of user stories, which are short, simple descriptions of the desired functionality told from perspective of the user. An example would be, "As a shopper, I can review the items in my shopping cart before checking out so that I can see what I've already selected."

Technical work and knowledge acquisition activities also belong on the agile backlog. An example of technical work would be, "Upgrade all developers' workstations to AutoCad 2016." An example of knowledge acquisition could be

a Scrum backlog item about researching various design options and making a selection.

The product owner shows up at the sprint planning meeting with the prioritized agile product backlog and describes the top items to the team. The team then determines which items they can complete during the coming sprint. The team then moves items from the product backlog to the sprint backlog. In doing so, they expand each Scrum product backlog item into one or more sprint backlog tasks so they can more effectively share work during the sprint.

Conceptually, the team starts at the top of the prioritized Scrum backlog and draws a line after the lowest of the high-priority items they feel they can complete. In practice, it's not unusual to see a team select, for example, the top five items and then two items from lower on the list that are associated with the initial five.

Einkenni	Notendasaga (User Story)			Stuðningur			
	Sem þáttandi <actor>	...vil ég gjarnan <description>	...svo að <outcome>	Forgangur	Byld fyrir (dags.)	Uppfært (dags.)	(þlékkur)
Stefnumarkandi verkefni	Sem eigandi	fjárfests í vinnutækjum, innflutning á vörum og byggja upp framkvæmdaráðgjöf	áhætta/sveiflur í rekstri minnki og tekjur aukist.				
Stefnumarkandi verkefni	Sem framkvæmdastjóri	vera með eigin framkvæmdir	félagið sé ekki eins háð tilboðsmarkaðnum og hagnist betur				
Skipulagsverkefni	Sem framkvæmdastjóri	að steypa, bæði sem efni og vinnan við að steypa, sé skipulögð þannig	að kostnaður sé ávallt í lágmarki				
Skipulagsverkefni	Sem framkvæmdastjóri	skráning aukaverka sé svo markviss og skipulögð	fyrirtækið fái allar mögulegar og réttmætar tekjur af verkefnum sínum				
Stjórnunarkerfisverkefni	Sem verkefnastjóri	vil ég að til sé kerfi sem hámarkar nýtingu á efni og mannskap	sóun á aðföngum sé ávallt eins lítil og kostur er				
Stjórnunarkerfisverkefni	Sem verkefnastjóri	vil ég að áætlunargerð sé vönduð	allir viti fyrirfram hvað á að gera og hvað á ekki að gera, hver ábyrgð hvers er, hvað hlutirnir/værkin kosta og tímalínur				
Upplýsingakerfisverkefni	Sem verkefnastjóri	vil ég hafa gagnagrunn um udirvertaka, efni, mannskap og aðföng	upplýsingar um það sem mestu máli skiptir fyrir góðan daglegan rekstur séu aðgengilegar miðlaegt tryggð sé að bestu verð og afslættir skili sér til félagsins				
Upplýsingakerfisverkefni	Sem fjármálaastjóri	vil ég að þeir sem samþykka reikninga geri það vandlega og samvisskusamlega					

Figure 2.9. A Template to arrange a Product Backlog

2.12 SPRINT RETROSPECTIVE

No matter how good a Scrum team is, there is always opportunity to improve. Although a good Scrum team will be constantly looking for improvement opportunities, the team should set aside a brief, dedicated period at the end of each sprint to deliberately reflect on how they are doing and to find ways to improve. This occurs during the sprint retrospective.

The sprint retrospective is usually the last thing done in a sprint. Many teams will do it immediately after the sprint review. The entire team, including both the Scrum-master and the product owner should participate. You can schedule a scrum retrospective for up to an hour, which is usually quite sufficient. However, occasionally a hot topic will arise or a team conflict will escalate and the retrospective could take significantly longer.

Although there are many ways to conduct an agile sprint retrospective, our recommendation is to conduct it as a start-stop-continue meeting. This is perhaps the simplest, but often the most effective way to conduct a retrospective. Using this approach each team member is asked to identify specific things that the team should:

1. Start doing
2. Stop doing
3. Continue doing

There are many variations on this simple format. The Scrum-master can facilitate this sprint retrospective meeting by asking everyone to just shout out ideas during the scrum. The Scrum-master can go around the room asking each person to identify any one thing to start, stop or continue. Or, for example, he or she can tell everyone to focus on identifying something to stop this time because not much attention has been paid to things to stop in recent retrospectives.

After an initial list of ideas has been brainstormed, teams will commonly vote on specific items to focus on during the coming sprint. At the end of the sprint, the next retrospective is often begun by reviewing the list of things selected for attention in the prior sprint retrospective.

2.13 TO WRITE A USER STORY

User stories are short, simple descriptions of a feature told from the perspective of the person who desires the new capability, usually a user or customer of the system. They typically follow a simple template:

As a <type of user>, I want <some goal> so that <some reason>.

One of the benefits of agile user stories is that they can be written at varying levels of detail. We can write a user story to cover large amounts of functionality. These large user stories are generally known as epics.

As a user, I can access all information on inventory turnover.

Because an epic is generally too large for an agile team to complete in one iteration, it is split into multiple smaller user stories before it is worked on. The epic above could be split into dozens (or possibly hundreds), including these two:

As a power user, I can specify the turnover of the most expensive items in storage in order to minimize inventory cost.

As a user, I can indicate daily if certain expensive units are piling up so I can take action to offload them.

User stories are written throughout the agile project. Usually a story-writing workshop is held near the start of the agile project. Everyone on the team participates with the goal of creating a product backlog that fully describes the functionality to be added over the course of the project or a three- to six-month release cycle within it.

User stories are often written on index cards or sticky notes, stored in a shoe box, and arranged on walls or tables to facilitate planning and discussion. As such, they strongly shift the focus from writing about features to discussing them. In fact, these discussions are more important than whatever text is written.

2.14 TASK DESCRIPTION

User stories are typically a description of a function visible to the user of the product. The function is usually defined by a cooperation of many people and stakeholders. A task, on the other hand, is usually a definition of the work to be carried out to realize the user story assigned to the person or persons responsible for the work. Sometimes we use the word “work package” for the same purpose.

A task description should include the following.

- Purpose of the task.
- Persons authorized.
- Work description.
- Procedures to be applied.
- Time scales (even cost and resources).
- Constraints (budget, restrictions, etc.)
- Description of the deliverable.
- Estimates.

2.15 PLANNING POKER

Team work in Agile is very much about estimating. The team must gain consensus on such things as the importance of user-stories, a feature, time estimates, size of project, etc. There are number of ways to reach this consensus on prioritizing and one of them is named Planning poker.

Planning poker is a consensus-based, gamified technique for estimating, mostly used to estimate effort or relative size of development goals in software development. In planning poker, members of the group make estimates by playing numbered cards face-down to the table, instead of speaking them aloud. The cards are revealed, and the estimates are then discussed. By hiding the figures in this way, the group can avoid the cognitive bias of anchoring, where the first number spoken aloud sets a precedent for subsequent estimates.

Each estimator is holding a deck of Planning Poker cards with values like 0, 1, 2, 3, 5, 8, 13, 20, 40 and 100, which is the sequence often used. The values rep-

resent the number of story points, ideal days, or other units in which the team estimates.



Figure 2.10. Planning Poker cards

The estimators discuss the feature, asking questions of the product owner as needed. When the feature has been fully discussed, each estimator privately selects one card to represent his or her estimate. All cards are then revealed at the same time.

If all estimators selected the same value, that becomes the estimate. If not, the estimators discuss their estimates. The high and low estimators should especially share their reasons. After further discussion, each estimator reselects an estimate card, and all cards are again revealed at the same time.

The poker planning process is repeated until consensus is achieved or until the estimators decide that agile estimating and planning of a particular item needs to be deferred until additional information can be acquired.

Teams estimating with Planning Poker consistently report that they arrive at more accurate estimates than with any technique they'd used before.

One reason Planning Poker leads to better estimates is because it brings together multiple expert opinions. Because these experts form a cross-functional team from all disciplines on the project, they are better suited to the estimation task than anyone else.

2.16 FACILITATING

The Scrum -master serves as the team's coach, helping team members work together in the most effective manner possible. A good Scrum-master views the role as one of providing a service to the team, removing impediments to progress, facilitating meetings and discussions, and performing typical project management duties such as tracking progress and issues.

The team itself assumes agile project management roles when determining how to best achieve the product goals (as established by the product owner). Team members will collaboratively decide which person should work on which tasks, which technical practices are necessary to achieve stated quality goals, and so on.

So, what is “agile” about this process? Agile project management divides responsibility among more than one team member. In the case of Scrum, it’s a project's product owner, Scrum-master and the rest of the team.

So many members of the team must be able and willing to take on the role of a facilitator.

The role of facilitator only emerged as a separate set of skills in the 1980s and is aggressively used in organizations using Agile-approach. It has similarities to the traditional secretary roles in a meeting but goes beyond them to actively participate and guide the group towards consensus.



Figure 2.11. A facilitator at work

2.16.1 Setting ground rules

Often disregarded by those untrained in facilitation, setting ground rules is a key component of the facilitation process especially in meetings convened to discuss difficult problems or for training. These rules are usually reiterated in some form at the outset of a facilitated meeting or workshop to ensure participants understand the various roles being employed and the responsibilities accorded to each. Certain aspects feature highly such as:

- being open to suggestions
- building on what is there, not knocking down ideas
- allowing others space (to speak or express themselves)
- mutual respect
- that the facilitator does not own the topic under discussion and the identity of that owner is clear
- rules of engagement such as time-outs and procedures that will be adopted
- how unresolved issues will be captured and dealt with

Finally it is key that, during the meeting, it is clear that the owner of the topic is not expected to intervene to impose ideas beyond setting out parameters for consideration or to give insight. The facilitator in this respect owns the process of the meeting.

The practical arrangements for the meeting will be arranged or managed by the facilitator. They will also consider in detail the location and layout of the room. They will research the meeting beforehand to understand why it is being held and that all stakeholders are invited and able to attend.

They will understand in detail how each item on the agenda is to be tackled and how long it should take. Using specialist techniques they will allow participants to understand all the issues at stake and all alternative courses of action. The Facilitator designs the process (agenda) based on his or her discussions with the participants and the Facilitator's process expertise.

Whilst tackling the practical aspects of a meeting they remain aware of undercurrents, both verbal and non-verbal, which may indicate problems the group is having. The facilitator may try to assist the group in becoming aware of these.

2.16.2 The facilitator's checklist

- research the meeting
- find out the purpose and goal (if any) of the meeting
- establish who needs to attend
- draw up a draft agenda and design the group processes to attain the necessary results
- share the agenda with potential attendees, changing it as necessary
- ensure everyone gets fully briefed for the meeting and that everyone knows the purpose and potential consequences of the meeting
- During the meeting, facilitators:
 - monitor the agenda
 - keep time
 - manage the group process
 - encourage participation from all attendees
 - help participants understand different points of view
 - foster solutions that incorporate diverse points of view
 - manage participant behavior
 - create a safe environment
 - teach new thinking skills and facilitate structured thinking activities
 - record (with an agreed phraseology) agreements. They may also note unresolved issues for later debate.

The facilitator may write up and publish the results of the meeting to everyone concerned including those who could not attend.

2.17 BRAINSTORMING

For decades, people have used brainstorming to generate ideas, and to come up with creative solutions to problems. However, you need to use brainstorming correctly for it to be fully effective. Arguably the original approach is presented as early as 1953¹ but the method is under constant improvement. Brainstorming combines a relaxed, informal approach to problem solving with lateral thinking. It encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be crafted into original, creative solutions to

¹ A book by Alex Osborn named Applied Imagination.

a problem, while others can spark even more ideas. This helps to get people unstuck by "jolting" them out of their normal ways of thinking.

Therefore, during brainstorming sessions, people should avoid criticizing or rewarding ideas. You're trying to open up possibilities and break down incorrect assumptions about the problem's limits. Judgment and analysis at this stage stunts idea generation and limit creativity.

Evaluate ideas at the end of the session – this is the time to explore solutions further, using conventional approaches.

You might consider using Icebreakers if the session is considered difficult to facilitate. As the name suggests, these sessions are designed to "break the ice" at an event or meeting. The technique is often used when people who do not usually work together, or may not know each other at all, meet for a specific, common purpose. There are many types of ice breakers, each suited to different types of objectives. Here we look at a few of the more popular types and how they can be used. These are used to introduce participants to each other and to facilitate conversation amongst them.

The Little Known Fact: ask participants to share their name, department or role in the organization, length of service, and one little known fact about themselves.

This "little known fact" becomes a humanizing element that can help break down differences such as grade/status in future interaction.

True or False: ask your participants to introduce themselves and make three or four statements about themselves, one of which is false. Now get the rest of the group to vote on which fact is false.

As well as getting to know each other as individuals, this exercise helps to start interaction within the group.

Interviews: ask participants to get into twos. Each person then interviews his or her partner for a set time while paired up. When the group reconvenes, each person introduces their interviewee to the rest of the group.

Problem Solvers: ask participants to work in small groups. Create a simple problem scenario for them to work on in a short time. Once the group have analyzed the problem and prepared their feedback, ask each group in turn to present their analysis and solutions to the wider group.

Provided the working atmosphere is favorable these are the steps to take for a successful Brainstorm session:

2.17.1 Step 1: Prepare the Group

First, set up a comfortable meeting environment. Make sure that the room is well-lit and that you have the tools, resources, and refreshments that you need.

How much information or preparation does your team need in order to brainstorm solutions to your problem? Remember that prep is important, but too much can limit – or even destroy – the freewheeling nature of a brainstorming session.

Consider who will attend the meeting. A room full of like-minded people won't generate as many creative ideas as a diverse group, so try to include people from a wide range of disciplines, and include people who have a variety of different thinking styles.

When everyone is gathered, appoint one person to record the ideas that come from the session. This person shouldn't necessarily be the team manager – it's hard to record and contribute at the same time. Post notes where everyone can see them, such as on flip charts or whiteboards; or use a computer with a data projector.

2.17.2 Step 2: Present the Problem

Clearly define the problem that you want to solve, and lay out any criteria that you must meet. Make it clear that the meeting's objective is to generate as many ideas as possible.

Give people plenty of quiet time at the start of the session to write down as many of their own ideas as they can. Then, ask them to share their ideas, while giving everyone a fair opportunity to contribute.

2.17.3 Step 3: Guide the Discussion

Once everyone has shared their ideas, start a group discussion to develop other people's ideas, and use them to create new ideas. Building on others' ideas is one of the most valuable aspects of group brainstorming.

Encourage everyone to contribute and to develop ideas, including the quietest people, and discourage anyone from criticizing ideas.

As the group facilitator, you should share ideas if you have them, but spend your time and energy supporting your team and guiding the discussion. Stick to one conversation at a time, and refocus the group if people become sidetracked.

Although you're guiding the discussion, remember to let everyone have fun while brainstorming. Welcome creativity, and encourage your team to come up with as many ideas as possible, regardless of whether they're practical or impractical.

Don't follow one train of thought for too long. Make sure that you generate a good number of different ideas, and explore individual ideas in detail. If a team member needs to "tune out" to explore an idea alone, allow them the freedom to do this.

Also, if the brainstorming session is lengthy, take plenty of breaks so that people can continue to concentrate.

2.17.4 Step 4: Taking action

After your individual or group brainstorming session, you'll have a lot of ideas. Although it might seem hard to sort through these ideas to find the best ones, analyzing these ideas is an important next step, and you can use several tools to do this. Previously we have discussed user stories and task descriptions. In order to make them sufficiently detailed and to be certain of the correct priorities an array of methods are applicable.

Examples are:

Need or nice analysis – items sorted by those defined as necessary and those only “nice to have”.

Forced ranking – team members sort the topics individually by importance. Then votes are then summed up and the topic with the lowest score is the most important, the topic with the second lowest score comes next, etc.

Affinity diagrams – sorting/grouping into categories so ideas are organized.

Decision analysis matrix – you to list your options as rows on a table, and the factors you need consider as columns. You then score each option/factor combination, weight this score by the relative importance of the factor, and add these scores up to give an overall score for each option.

Paired comparison analysis – The tool is particularly useful when you don't have objective data to use to make your decision. It's also an ideal tool to use to compare different, subjective options, for example, where you need to decide the relative importance of qualifications, skills, experience, and team-working ability when hiring people for a new role.

Net present value calculation (NPV) – financial analysis should consider the time value of money. NPV is decided by finding the initial investment value which is sub tracked from the discounted cash flow over the lifecycle of the project (r = discount factor).

$$\text{Initial investment} - \sum_{t=1}^n \frac{\text{Net Cash Flow}}{(1 + r)^t}$$

Another important financial analysis is **Cost Benefit Analysis (CBA)** also based on financial value of time series but may also consider other utilities than monetary values.

2.18 LEAN MANAGEMENT

The core idea about Lean management is to maximize customer value while minimizing waste. Simply, lean means creating more value for customers with fewer resources.

A lean organization understands customer value and focuses its key processes to continuously increase it. The ultimate goal is to provide perfect value to the customer through a perfect value creation process that has zero waste.

To accomplish this, lean thinking changes the focus of management from optimizing separate technologies, assets, and vertical departments to optimizing the flow of products and services through entire value streams that flow horizontally across technologies, assets, and departments to customers.

Eliminating waste along entire value streams, instead of at isolated points, creates processes that need less human effort, less space, less capital, and less time to make products and services at far less costs and with much fewer defects, compared with traditional business systems. Companies are able to respond to changing customer desires with high variety, high quality, low cost, and with very fast throughput times. Also, information management becomes much simpler and more accurate.

There are several key lean manufacturing principles that need to be understood in order to implement lean. Failure to understand and apply these principles will most likely result in failure or a lack of commitment from everyone in your organization. Without commitment the process becomes ineffective. This page reviews some of the more critical lean manufacturing principles and should help you get started. Consider these to be the "guiding principles" of lean manufacturing as there are others that have not been included.

2.18.1 Elimination of Waste

One of the most critical principles of lean manufacturing is the elimination of waste (known as *Muda*). Many of the other principles revolve around this concept. There are 7 basic types of waste in manufacturing:

1. Over Production
2. Waste of Unnecessary Motion
3. Waste of Inventory
4. Production of Defects
5. Waste of Waiting
6. Waste of Transportation
7. Waste of Over-processing

Sometimes the eight type is included which is the lack of using human intelligence to reduce waste.

Although the above mentioned types of waste were originally geared toward manufacturing, they can be applied to many different types of business and is well suited for the Agile mindset. The idea of waste elimination is to review all areas in your organization, determine where the non-value added work is and reduce or eliminate it.

Lyklar: O = framleitt, L = birgðir, F = handtök, B = Biðtími, T = flutningur, G = gallar, M = viðbótarvinna, V = vinna

#	Skref í ferli (TAKT)	O	L	F	B	T	G	M	V	Klst	Kr/klst	Alls kr.	Virðis ISK
1	Teikningar sóttar	x								1	6.500	6.500	
2	Frávik frá "staðalíbúð" metin							x		0,5	6.500	3.250	
3	Efnislisti tekinn saman								x	1	6.500	6.500	6.500
4	Verkfæri tekin saman	x								1	6.500	6.500	
5	Efni pantað								x	0,5	6.500	3.250	3.250
6	Efni sótt					x				4	9.000	36.000	
7	Efni komið á framkvæmdastað					x				3	16.000	48.000	
8	Framkvæmdastaður undirbúinn					x				2	12.000	24.000	
9	Innréttingar settar upp							x		16	12.000	192.000	192.000
10	Aukaefni sótt					x				2	6.500	13.000	
11	Rafvirkjar tengja tæki				x					1,5	12.000	18.000	
12	Innrétting klárð							x		2	12.000	24.000	24.000
13	Gæðaeftirlit								x	1,5	8.000	12.000	
14	Beðið eftir niðurstöðum QM				x					2	12.000	24.000	
15	Lagfæringar				x					5	12.000	60.000	
16	Lokaúttekt					x				1	8.000	8.000	
17	Frágangur	x								2,5	12.000	30.000	
18	Afgangsefni tekið saman						x			1	6.500	6.500	
19	Afgangsefni skilað							x		3	12.000	36.000	
20	Verkfærum skilað	x								1	6.500	6.500	
21	Skýrsla til verkefnisstjóra				x					1,5	6.500	9.750	
												573.750	225.750

Figure 2.12. A process flow chart defining value and waste before Kaizen in a construction company

Lyklar: O = framleitt, L = birgðir, F = handtök, B = Biðtími, T = flutningur, G = gallar, M = viðbótarvinna, V = vinna

#	Skref í ferli (TAKT)	O	L	F	B	T	G	M	V	Klst	Kr/klst	Alls kr.	Virðis ISK
1	Undirbúningur með verkefnisstjóra	x								2	15.000	30.000	
2	Sérefni pantað								x	0,5	6.500	3.250	3.250
3	Efni sótt á millilager									1	9.000	9.000	
4	Efni komið á framkvæmdastað					x				1,5	16.000	24.000	
5	Framkvæmdastaður undirbúinn					x				0,5	12.000	6.000	
6	Innréttingar settar upp							x		14	12.000	168.000	168.000
7	Gæðaeftirlit								x	1	8.000	8.000	
8	Beðið eftir niðurstöðum QM				x					1	12.000	12.000	
9	Lagfæringar				x					1	6.500	6.500	
10	Lokaúttekt					x				0,5	8.000	4.000	
11	Frágangur	x								1	12.000	12.000	
12	Afgangsefni tekið saman						x			1	6.500	6.500	
13	Afgangsefni skilað á millilager							x		1	12.000	12.000	
13	Verkfærum skilað	x								1	6.500	6.500	
14	Skýrsla til verkefnisstjóra				x					0,5	6.500	3.250	
												311.000	171.250

Figure 2.13. A process flow chart defining value and waste after Kaizen in a construction company

2.18.2 Continuous Improvement

Continuous Improvement (commonly referred to by the Japanese word kaizen) is arguably the most critical principle of lean management. It should truly form the basis of your lean implementation. Without continuous improvement your progress will cease. As the name implies, Continuous Improvement promotes

constant, necessary change toward achievement of a desired state. The changes can be big or small but must lend itself toward improvement (often many small changes are required to achieve the target). The process truly is continual as there is always room for improvement.

Continuous Improvement should be a mind-set throughout your whole organization. Do not get caught up in only trying to find the big ideas. Small ideas will often times lead to big improvements.

2.18.3 Quality Built In

The idea behind this principle is that quality is built into the work process. Quality is built into the design of the product. Quality is built into the packaging. Throughout all areas of the product, from design to shipping, quality is a major consideration. Automation with a human touch falls within this principle. Machines that can detect defects and stop production are an excellent example of this principle. Part profile mistake-proofing, which prevents an operator from mis-orienting parts, is another excellent example. In Lean the focus must be on doing it right the first time.

Other principles worth mentioning are respect for people and Just in time manufacturing (JIT).

CHAPTER 3

INTERCULTURAL ASPECTS OF CONSTRUCTION

(J. KLINGENBERGER, D. SCHMITZ)

3.1 INTRODUCTION

The general trend of globalization also affects the construction industry. The rules of the European Union provide a common European economic space and enable the citizens of the Member States to freely choose the place where they are employed.

In addition, the procurement law, which is defined by the legal framework of the European Union, provides that planning services and construction works whose contract value exceeds a defined threshold must be tendered across Europe. As a result, foreign companies can also participate in the construction market, which is basically dominated by a regional market.

The construction market is characterized by a very strong price pressure. In order to be competitive and to receive orders, companies try to keep their costs, especially for the staff, as low as possible. A typical way to achieve this goal is the commissioning of subcontractors with foreign staff. As a result, commercial workers from a wide range of nationalities are employed on today's construction sites.

From this brief description of the situation, it can be seen that the achievement of the goal of the economically successful execution of a construction project is also influenced, in particular, by the cooperation of the persons of different nationalities and cultures involved in it.

The aim of this chapter is to raise the reader's awareness of the importance of intercultural competence as a success factor in the execution of construction projects.

Against this background, the concepts of culture, multiculturalism and interculturalism are defined and delineated in this chapter. In addition, cultural distinctions, cultural dimensions and cultural manifestations are presented. In a second section, construction project management is described as an interdisciplinary cross-section task, and the intercultural requirements for the construction work are explained. These requirements lead to a need for intercultural competency among all actors involved. For a definition of intercultural competence, the concept of competence is explained by a systematization as well as various individual competences. The acquisition of intercultural competence is usually subject to a typical learning process. This is presented to finally compare different methods of intercultural training.

3.2 CULTURE AND INTERCULTURALITY

3.2.1 Definitions of culture, multiculturalism and interculturalism

People live as individuals in a social environment that shapes their personal values and norms, attitudes and beliefs, ways of thinking and behavior. This imprinting is an element of culture, which also determines the personal perception and interpretation of one's own environment.²

The UNESCO General Conference reaffirmed in its universal declaration on cultural diversity, “that **culture** should be regarded as the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, and that it encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs”³.

In addition, different **cultural levels** can be distinguished. Each cultural level unites a group of people with common characteristics and cultural imprints. In this context each person belongs to more than one of the levels listed below:⁴

- The level of the nation or country.
- The level of regional or ethnic or religious or linguistic affiliation.
- The level of sex.

² Cf. Bannenberg, Ann-Kristin (2010), p. 54

³ UNESCO (2001)

⁴ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 12 f.

- The level of generation.
- The level of the social class or access to education or of the professional group.

The concept of **multiculturalism** describes a society which is characterized by the coexistence of people of different cultures. Multiculturalism thus refers to the social structures of a society. By contrast, the concept of **interculturalism** is used to describe a process of coexistence and cohabitation of people of different cultures influencing each other mutually in a society.⁵

3.2.2 Cultural distinction features

The nature of cultures can be described and explained by using models. The iceberg model according to Hall and the bulb model by Hofstede are presented below. Both models structure a culture into different elements and distinguish these elements by means of various characteristics. However, the individual elements cannot be considered in isolation, since the elements influence each other. The models also support an explanation of intercultural differences between the members of different cultural groups.

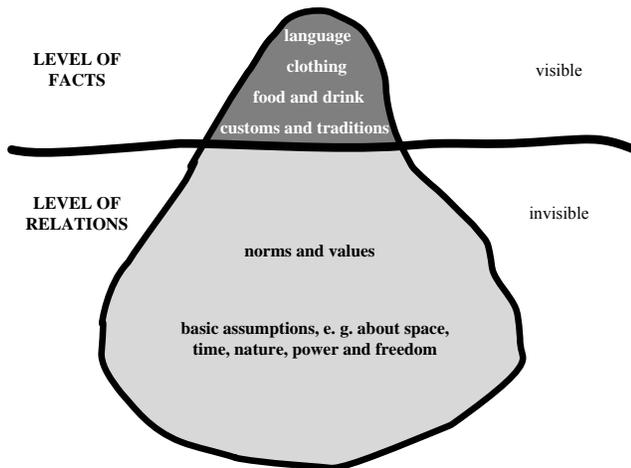


Figure 3.1: Iceberg model by Hall

The **iceberg model by Hall** (s. Figure 3.1) divides culture into two parts. The tip of the iceberg represents the visible part, the level of facts, and symbolizes

⁵ Cf. Boltzen, Jürgen (2012), p. 39

the smaller, but outwardly acting and consciously perceived part of a culture. These include language, customs and traditions, clothing, music, theater and literature as well as food and drink. In addition, there is the underwater invisible part of the iceberg, the level of relations. These parts of a culture are the most important but hidden elements. They are determined by norms and values as well as by basic assumptions, e. g. about space, time, nature, power as well as freedom. In addition, the visible parts of culture are shaped by the invisible ones.⁶

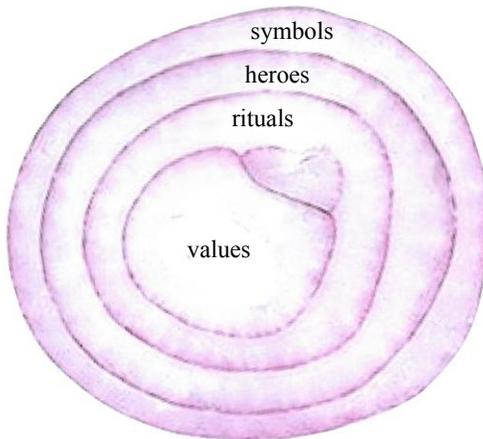


Figure 3.2: Different levels of culture by Hofstede

The **different levels of culture by Hofstede** (s. Figure 3.2) divides a culture in four layers and differentiates between four categories of cultural imprints. The innermost are the values of a culture. Values are reflected in the ideas, feelings and behaviors of people, thus influencing their thinking, actions and judgments. Individuals are often unaware of their values, but at the same time they classify the common values of their culture as good, correct and desirable, and are bounded by these values to other cultures. Values are not visible to the outside and are covered in the model by the layer of the rituals of a culture. Rituals are fixed patterns of behavior and expressive actions. These include, for example, processes of social and religious ceremonies, as well as negotiations and talks. The existence of rituals is technically often unfounded, rituals are carried out as

⁶ Cf. Wien, Andreas; Franzke, Normen (2014), pp. 40 f. and Wiegmann, Dietlind (2009), pp. 23 f.

a self-purpose for social reasons within a culture. The layer above it describes the heroes of a culture. Heroes are models and culture bearers with highly respected qualities. These may be historical, contemporary, or even fictitious characters. The outermost layer, the perceptible element for the environment, is formed by the symbols of a culture. Symbols are, for example, words, gestures and the body language, clothing, food and drinks as well as buildings and music and thus clearly visible to the outside. The meaning of individual symbols is partly only known to the members of the respective cultural group. This model of the onion also describes that the further outward cultural elements are more easily influenced and changed by the environment.⁷

3.2.3 Cultural dimensions

The culture of a society is characterized by different aspects. These aspects are called **cultural dimensions** and can be measured among a society or a group respectively. Hofstede differentiates between five different cultural dimensions, power distance, individualism versus collectivism, masculinity versus femininity, uncertainty avoidance, and the long-term versus short-term orientation (s. Figure 3.3).⁸

Power distance describes the understanding of power as well as the handling and acceptance of inequality of less powerful people in a society. Groups with a high power distance show an unequal distribution of power. In companies with such a high power distance there is a strong hierarchy and an authoritarian leadership style is maintained. Employees receive instructions from their executives, opposition and criticism against these do not take place. The emotional distance between leadership and employees is great. On the other hand, in groups with a small power distance the responsibility is uniformly distributed. In companies with a low power distance flat hierarchies exist and a cooperative management style is lived. Tasks are delegated and management decisions are made on the basis of consulting with the employees. The emotional distance between management and employees is low.⁹

⁷ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 8 ff.

⁸ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 29 f.

⁹ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 58 f.

The cultural dimension of **individualism versus collectivism** describes the role of the individual over the role of the group. In collectivist societies the interest of the group precedes the interest of the individual. In the sense of collectivism, group interest does not refer to the power of the state, but to the power of the group, e.g. the extended family. The individual is part of this closed group, which gives him identity and protection and in turn demands loyalty. In individualistic societies the interest of the individual is above the interest of the group. The bonds between individuals are loose; everyone takes care of himself and his immediate family environment; freedom and leisure have a special importance.¹⁰

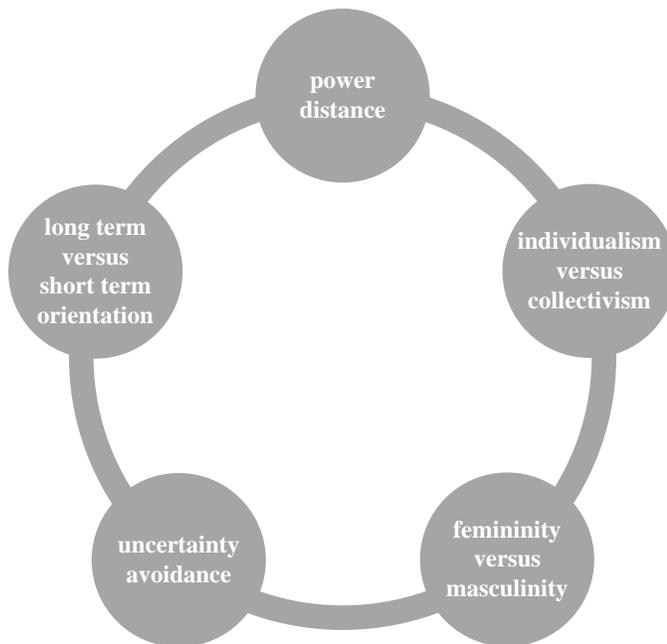


Figure 3.3: Cultural dimensions by Hofstede

Femininity versus masculinity as a cultural dimension does not refer to the biological difference of the people. Masculine oriented societies are characterized by a clear mutual emotional demarcation of the roles of the sexes. Men are determined, hard, performance-oriented and strive for material success as well as professional recognition. Women, on the other hand, are modest and sensi-

¹⁰ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 100 ff.

tive. For them, quality of life in the form of pleasant and friendly coexistence with the private environment and good cooperation in the professional field is of particular importance. In contrast, the gender roles overlap emotionally with feminine-oriented societies.¹¹

The cultural dimension of **uncertainty avoidance** describes the degree to which members of a society or group feel threatened by unknown situations. Societies with severe uncertainty avoidance have a relatively high level of anxiety against uncertain situations and little tolerance for divergent opinions. They try to prevent potential insecurities from people by means of technology, law (rules and regulations) or religion. By contrast, companies with low uncertainty avoidance are considered to be innovation friendly and willing to take risks, since they have a relatively low anxiety level of unsafe practices and can deal with these.¹²

The **long term versus short term orientation** constitutes the fifth cultural dimension. Long term oriented cultures are characterized by the qualities of diligence, endurance and perseverance, personal adaptability and thrift. In the case of short term oriented cultures, both a past and a present orientation can be determined. Therefore, they are characterized by their respect for traditions, their own claim to be credible, by a willingness of spending money and the fulfillment of social obligations.¹³

3.2.4 Cultural categories

The cultures of the world can be divided into three large groups, which combine certain basic social concepts i. e. **cultural categories**. According to Lewis, these are the linear-active culture, the multi-active culture, and the reactive culture (s. Figure 3.4).

People who belong to a **linear-active culture** are described with the following characteristics. They are goal-oriented and task-oriented, plan and organize their activities, act cool, logical and realistic, and are responsible, reliable and punctual. Their communication is deliberate, factual and information-oriented and characterized by clear statements. Their decisions are binding, they classify

¹¹ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 164 f.

¹² Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), p. 230 und p. 233

¹³ Cf. Hofstede, Geert; Hofstede, Gert Jan (2009), pp. 292 ff.

them as an oral contract. Swiss and German are considered to be typically and strongly linear-active.¹⁴

The **multi-active culture** is characterized by people who operate personal and relationship oriented. They are described as warm, open-minded, emotional, impulsive and impatient as well as unpunctual. Their communication is lively and characterized by their body language and talkativeness. They are creative, avoid precepts in time or cause, act flexibly and often appear chaotic. They are always ready to revise their decision as a result of changing circumstances. As typically and strongly multi-active Italians, Spanish, Mexicans as well as Brazilians apply.¹⁵

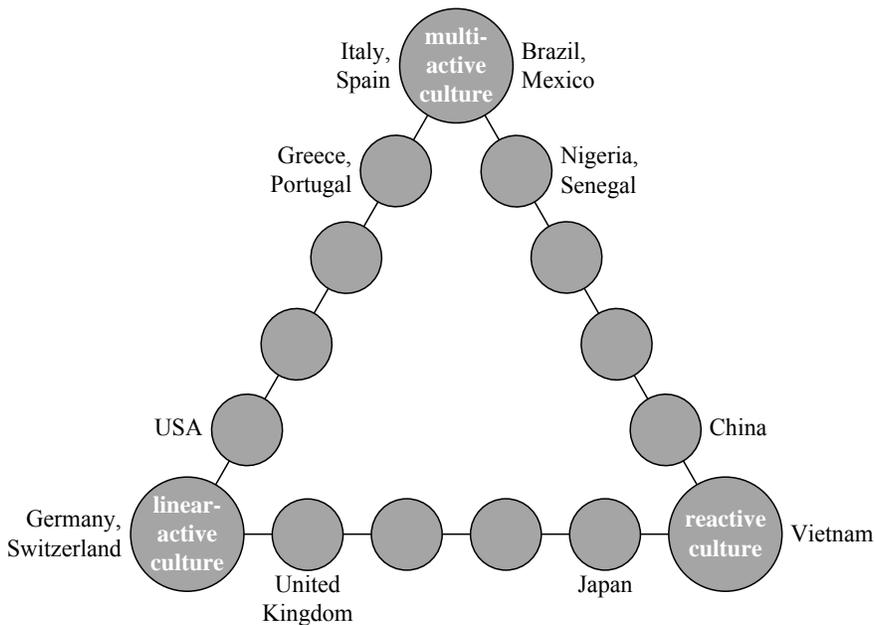


Figure 3.4: The Lewis Model with examples of typical nations¹⁶

The **reactive culture** belongs to people who are considered polite and pleasant as well as reticent and introverted. Their communication is characterized by respect; they listen attentively, quietly and patiently, do not interfere with the

¹⁴ Cf. Richard Lewis Communications (b)

¹⁵ Cf. Richard Lewis Communications (c)

¹⁶ Based on Richard Lewis Communications (a) simplified

conversation partner and react cautiously and sensitively to their suggestions to avoid confrontations. Therefore, they express displeasure and annoyance, if at all, only indirectly, since they want to avoid any loss of face, both their own and those of their counterparts. Typically and highly reactive are Vietnamese, Chinese and Japanese.¹⁷

3.3 INTERCULTURAL CONSTRUCTION MANAGEMENT

3.3.1 Construction Management as an interdisciplinary cross-section task

Construction projects are characterized by a very work-sharing and complex structure of processes of planning and execution. This is reflected in a **variety of stakeholders** – clients, planners, consultants and appraisers, executing companies and government authorities - most of these are characterized by different **professional cultures** and in particular follow different goals and interests. A professional culture is a cultural level, which includes a group of people with similar dispositions and experience, motifs and attitudes.¹⁸ The client wants to get a building at the agreed budget and schedule with a defined quality. The planners and construction companies as contractors are primarily striving for an economically successful fulfillment of their obligations under the respective planning or construction contract. In addition, the interactions at the **interfaces between the different actors** are of particular importance; the action of each individual influences the other project participants. A mutual understanding of their different individual interests and willingness to **communicate** and **cooperate** are decisive factors for the success of the overall project. In addition, in the case of major projects, adequate acceptance and support of these projects in the population and the public is indispensable.

Planning processes in construction with the participation of different interacting actors are carried out under project-specific conditions. They are iterative, cyclical and result-oriented. Planning processes are therefore very dynamic and complex. The aim of planning is the feasibility of a fault-free, functional and

¹⁷ Cf. Richard Lewis Communications (d)

¹⁸ Cf. Multrus, Frank (2004), p. 374

permanently approved construction project. Based on a target system, data, information and knowledge are systematically processed and decisions are made by defining features, which undergo a direct incarnation of the construction project.¹⁹

The number of actors involved in the planning process has risen significantly in recent decades. This **large number of people involved in planning** reflects not only a large number of participating professions, but with regard to their professional education even more and different fields of study. This is e.g. due to the increased complexity of buildings and, in particular, to the associated installations of technical building equipment. In addition to the architect, more and more specialized experts such as planners for the supporting structure, geotechnical engineering, façade, technical installations, building physics, thermal insulation, soundproofing and fire protection, etc., as well as consultants for kitchen planning, conveyer systems and sustainable construction etc. are needed. Furthermore, the approval processes due to e.g. higher ecological and sociocultural requirements have become more complex, thus additional evaluators are involved.²⁰

The execution of construction works consists of a variety of different disciplines among the construction activities. Using the example of buildings, these **trades** can be divided into the groups of carcass, building envelope, technical building equipment and the development of a complex structure. Carcass includes, for example, earthworks, shoring, concrete works, steel constructions and scaffoldings. The building envelope covers, for example, the activities of sealing works, glazing, roller shuttering, thermal insulation composite systems and suspended ventilated facades. The group of technical building equipment includes, for example, sewage, water and gas systems, heat supply systems, air-technical systems, high-voltage systems and conveyor systems. The trades of the space forming expansion include e.g. the drywall construction works, the painting and decorating, the carpentry, the screed works and floor covering works.²¹

¹⁹ Cf. Motzko, Christoph; Kochendörfer, Bernd; Löhr, Michael; Pabst, Lydia (2012), p. 7 and Motzko, Christoph; Kochendörfer, Bernd; Löhr, Michael; Roigk, Margarete (2010), p. 12 und pp. 55 f.

²⁰ Cf. Sommer, Hans (2016), pp. 38 f.

²¹ Cf. Racky, Peter (1997), pp. 38 f.

The **construction processes** of the necessary trades are implemented by various companies. This means that several, in part a **large number of contractors and craftsmen** are simultaneously active during construction. These represent a wide variety of specialist cultures, which are to provide their trade-specific construction works within the scope of a construction project with the aim of jointly and coordinated erection of a building object.

This large number of actors, both in the planning phase and during the construction phase, and the interfaces between the various services of the planning and the construction processes have to be matched and coordinated. To ensure an **integrated planning** and a **complete and functional construction** are significant objectives of the client. The client is able to provide the required tasks and services within his own organization and his own personnel or to use an external consultant in the form of project control or project management.

3.3.2 Intercultural requirements for the construction work

Construction markets are classified despite increasing internationalization and globalization in principle as regional markets because buildings are location-bounded.²² Nevertheless, the stakeholders in construction processes are confronted with cross-cultural requirements. The clash of different cultures in construction projects and construction sites can occur as a result of different constellations:

- Traditional construction work abroad,
- Building with foreign subsidiaries and holding companies,

and in particular

- Building with multicultural construction site staff.

In the context of the **traditional construction work abroad** contractors operate project-related in other countries. They acquire larger or larger-scale projects at the international construction market and provide the construction work to be carried out in the target country, here mostly developing and emerging countries, where no or no sufficiently powerful construction industry is available. In

²² Cf. BWI-Bau (2013), p. 8

doing so, the necessary resources are exported to the target country in the form of personnel (in particular construction site managers, in some cases also blue-collar workers), construction machines and often also high-quality building materials from the company headquarters. These projects of traditional construction work abroad have special and additional requirements for the construction companies. In addition to the foreign language and the legal, political and economic realities of the destination country, the local climate and the cultural characteristics of the local society affect the project management.²³

In addition, contractors occur particularly in other industrialized countries with a powerful domestic construction industry through its own **subsidiaries** established in the respective country or **shares in existing companies** there on. This enables them to operate as local companies at the local construction market. The foreign subsidiaries and affiliates thus have their own personnel resources and their own competences. Intercultural requirements exist in this configuration in the interaction between the parent company and subsidiary, belonging to different cultural groups or societies and are therefore culturally differently influenced.²⁴

In addition to building abroad, domestic construction sites are particularly affected by intercultural requirements. The sites are characterized by **multicultural workforces** in the field of blue-collar workers despite the stated regional imprint of the construction market and regardless of the individual entrepreneurs use form. This is due to the population structure. In most European countries there is a non-negligible proportion of **foreign citizens** and **citizens with a migration background**.²⁵ In these countries, therefore people of different nationalities live, who often feel associated with different cultural groups. In addition to domestic workers whose employment structure can be seen as comparable to the population structure of the respective country, **employees of contractors and craft enterprises are relocated from other Member States of the European Union** in the corresponding national construction industry. Furthermore, other foreign employees work on domestic construction sites due to the **Free Movement of Workers within the European Union**, which enables na-

²³ Cf. Kulick, Reinhard (2010), p. 11

²⁴ Cf. Kulick, Reinhard (2010), pp. 12 f.

²⁵ Cf. Statista

tionals of the countries of the European Union the freedom to choose their employment situation. As a result, today many foreign workers are active on construction sites, who carry out their jobs because of their distinctive individual motivation. In addition to those people who work and live on a long term basis abroad and whose desire it is to integrate into the local society comes the group of foreign workers who work abroad on a temporary and short-term basis in order to find economic improvement in their income and life and who strive to return to their home country. The latter group sometimes also stays in temporary accommodations or on large building sites in container towers. This conglomerate of diverse people with diverse characteristics requires a variety of intercultural competencies from all project participants, but especially from the construction site managers.

The heterogeneity of the usual multicultural construction workforce in the field of blue-collar workers is characterized summarily in particular by the following three features:²⁶

- **Diversity in terms of qualification:** The education and vocational training depends on the individually completed education system, which is usually less distinctive in the field of blue-collar workers. The necessary qualification of unskilled workers is often acquired by multi-year practical training.
- **Diversity in terms of language skills:** On construction sites a variety of languages is spoken. Besides the mother tongue blue-collar workers usually have little knowledge of other languages. The lack of knowledge of the local language hinders the work of the site manager and makes the job more complicated.
- **Diversity in terms of cultural imprint:** Due to the diversity of nationalities and different migration background the blue-collar workers of a construction site are often related to a variety of cultural groups.

For an economically successful project completion thus the behavior of the site managers is of great relevance. Successful executives succeed in:²⁷

²⁶ Cf. Polzin, Brigitte; Weigl, Herre (2009), p. 35

²⁷ Cf. Polzin, Brigitte; Weigl, Herre (2009), p. 34

- creating groups that mutually supported each other,
- motivating and promoting employees,
- cooperating with all participants in a trustworthy manner,
- establishing and maintaining professional networks.

In doing so, they also meet intercultural requirements by integrating people who are characterized by the above-mentioned characteristics of cultural diversity, diversity in language skills and diversity with regard to qualification, into one construction site workforce.

3.4 INTERCULTURAL COMPETENCE AS A SUCCESS FACTOR FOR CONSTRUCTION MANAGEMENT

3.4.1 Defining the term competence

The term **competence** can be defined as the ability to carry out and complete perceptible actions self-determinedly.²⁸ While the term competence is classified as **eligibility (allowance)** of a person or body to carry out actions from the perspective of organizations, it describes the **capabilities (ability)** and the **willingness (desire)** of a person to perform actions from the perspective of psychology. (s. Figure 3.5).

The willingness of people to want to carry out actions is affected by the conditions of emotion, motivation and volition. **Emotions** can be described as a feeling, a stirring of emotion and a motion of mind that will be set in an action due to the achievement of objectives.²⁹ **Motivation** is all of the reasons for a future-oriented and thus for the fulfillment of needs serving acting.³⁰ **Volition** are capabilities led by will power that enable actions.³¹

²⁸ Cf. Niedermair, Gerhard (2012), p. 7

²⁹ Cf. Duden

³⁰ Cf. Lammers, Claas-Hinrich (2011), p. 34

³¹ Cf. Pelz, Waldemar (2013), p. 1

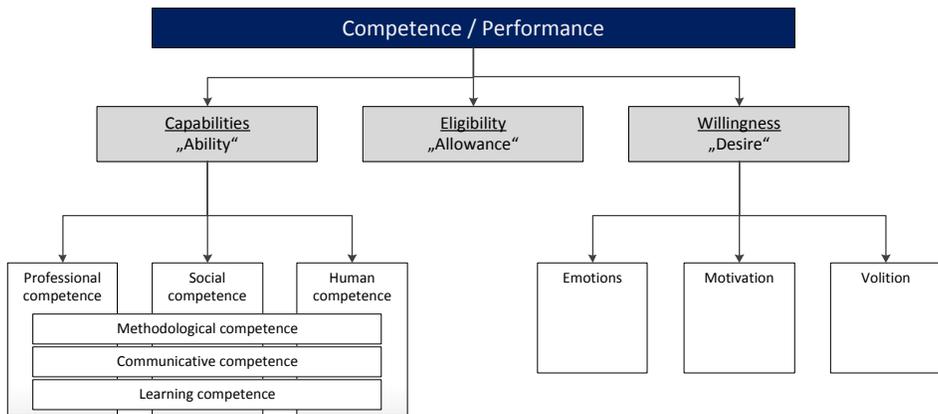


Figure 3.5: Systematization of the term competence³²

The characteristic or eligibility of a person to be able, to be allowed and to be willing to perform actions in concrete situations can be designated as competence. The individual categories of professional competence, social competence and human competence are determined by the holistic competence of an individual in the context of social, private, but especially professional situations. In addition, the cross-sectional categories of methodological competence, communicative competence and learning competence are components of the three individual categories. These six categories can be distinguished from each other according to the following definitions:³³

- **Professional competence** describes the ability of processing and executing tasks properly by the use of expert knowledge as well as evaluating and assessing results, states and situations professionally.
- **Social competence** is the ability of a human being to maintain social relationships and contacts, to identify individual interests and to cooperate with other people responsibly in interactions.
- **Human competence** is referred to as self-competence and personality competence and includes the ability to think through and assess their

³² By Schmitz, Daniel (2016), p. 112 developed based on Gessler, Michael (2010), p. 51 and p. 53

³³ Cf. Sekretariat der Ständigen Konferenz der Kultusminister (2007), pp. 10 f.

own development in a concrete situation to embellish and shape future opportunities by taking own talents into account.

- **Methodological competence** includes abilities of a person to accomplish complex tasks by applying methods e.g. for decision-making and problem-solution, which are in principle cross-situational applicable.
- **Communicative competence** is the ability of a human being, to design a communication consciously, goal-oriented, recipient-oriented and effectively.
- **Learning competence** includes the abilities of a person to be aware of the individual learning needs, to develop learning strategies and to organize and control their own learning process. This includes the ability to apply suitable learning techniques to e. g. collect, understand, evaluate and assess information.

3.4.2 Intercultural Competence

Intercultural competent people have the ability to link their professional, social, human, methodological, communicative and learning-related skills and to use them successfully in intercultural encounters according to the situation. **Intercultural competence** is therefore not a separate category of competence, but consists of a variety of the following key skills that facilitate and positively influences an intercultural action (s. Figure 3.6):³⁴

- **Empathy** is the ability and willingness to empathize with other people and to identify and respect their attitudes.
- **Cultural knowledge** about their own and the target culture promotes understanding of coherence and background of coexistence in different social environments.
- **Flexibility** is the ability and willingness to adapt to unknown situations, to question their own thinking and behavior patterns and adjust their own behavior.

³⁴ Cf. Bolten (2012), pp. 165 ff.

- **Intercultural learning willingness** is usually based on an interest in foreign cultures and arranges intercultural encounters as a learning process.
- The **ability to communicate** is the ability and willingness to communicate through speech and gestures with other people and thereby build relationships and networks.

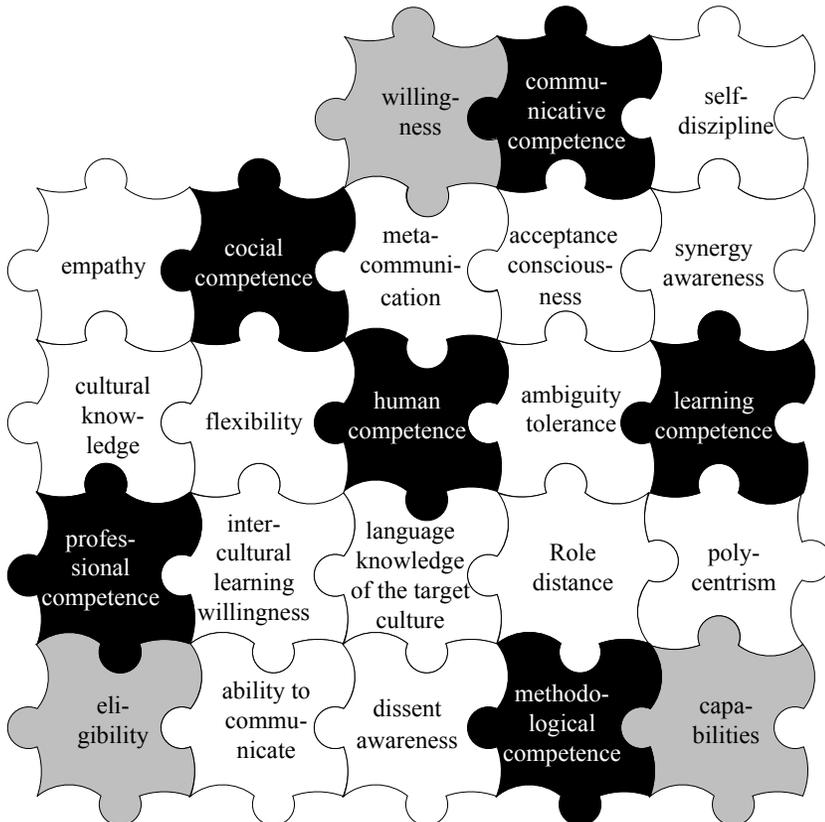


Figure 3.6: Intercultural competence is the result of combining abilities and characteristics of a person

- **Metacommunication** is the ability to agree on communication processes and to deal with problems and misunderstandings in communication early and appropriately. Here, the experienced behavior of the counterpart should be accepted and the own behavior should be explained.

- **Language knowledge of the target culture** promotes the understanding of this culture.
- **Dissent awareness** is the ability, to bring the differences in the deep structure between two cultures to mind, although there are on the surface no contradictions in the specific situation and no contrasts to identify.
- **Acceptance consciousness** requires to identify and to respect the acceptance limits of other people as well as to negotiate the mutually tolerated scope of acceptance as a common basis for action.
- **Ambiguity tolerance** is the ability to approve and to endure seemingly incompatible differences as well as double meaning and ambiguities.
- **Role distance** is the ability to distinguish and reflect expectations their own role and to judge for themselves the implementation of it critically.
- **Self-discipline** is the ability to organize one's own behavior itself, to dominate and to control.
- **Synergy awareness** is the ability and willingness not to orientate in intercultural encounters on existing structures and processes of a culture, but to act appropriately to the situation and atypically for the involved cultures and thus promote each other and develop something new.
- **Polycentrism** is an open attitude and approach towards other cultures. Intercultural encounters are not based on its own cultural character, but are evaluated specifically due to the individuality of the other culture.

3.4.3 Learning process of intercultural competence

People can acquire intercultural skills. They learn how to deal with a different culture and work according to Hofstede's bulb model from the outside to the inside. First they learn about the meaning of symbols and then internalize the heroes and the rituals of this new culture. Rarely, however, they immerse into the innermost of the bulb, the values of this culture.

The **learning process** of acquiring intercultural competencies can come along with a culture shock e.g. in the course of a long stay abroad. This can in turn ideally be divided into five phases (s. Figure 3.7).³⁵

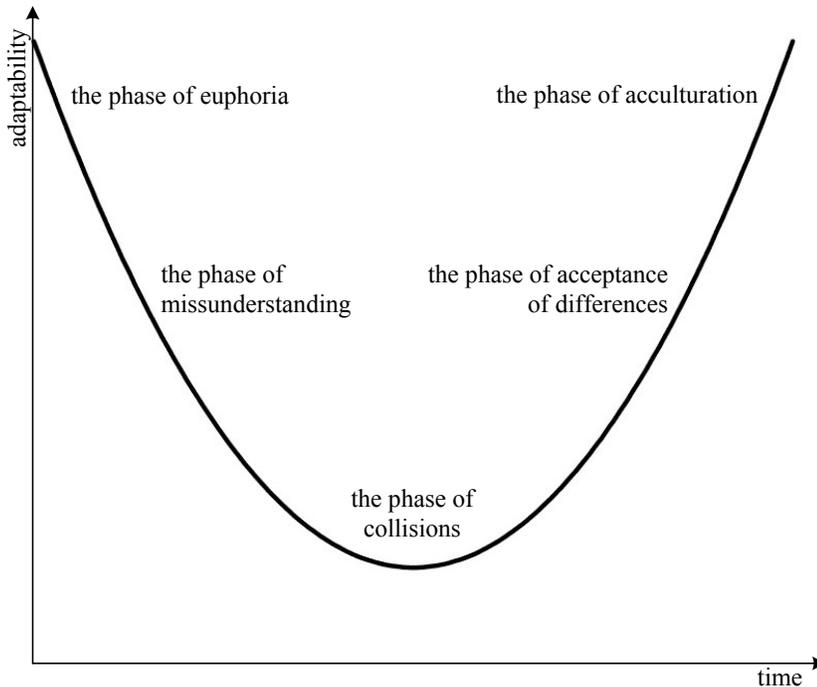


Figure 3.7: Learning process by changing the adaptability³⁶

- **The phase of euphoria:** People are looking forward to new experiences in a different culture, their perception is reduced to the positive expectations, exuberant reactions occur.
- **The phase of misunderstanding:** People do not know the normality standards of the other culture. The consequence is misunderstanding, for what they take the responsibility for themselves.

³⁵ Cf. Bolten, Jürgen (2012), pp. 92 f.

³⁶ Based on Bolten, Jürgen (2012), p. 93

- **The phase of collisions:** People do not recognize the actual causes of misunderstandings and therefore want the other side to take responsibility. Resignation sets in and one's own culture is revalued.
- **The phase of acceptance of differences:** People accept the differences between cultures. They show understanding and can endure contradictions.
- **The phase of acculturation:** People learn more and more about the differences in culture. They adopt behavioral characteristics of the other culture.

3.4.4 Methods of intercultural trainings

Intercultural training can basically be divided into four different types in terms of cultural diversity and methods:³⁷

- culture-specific informational trainings,
- cross-cultural informational trainings,
- culture-specific interaction-oriented trainings and
- cross-cultural interaction-oriented trainings.

Culture-specific informational trainings convey information about a specific target country. They usually deal with contents like features of personnel management and action conventions in everyday life. This type is often used for human resource development in enterprises. Here an exclusive description of individual features of the considered culture would only consider the factual level and is therefore not sufficient. In order to bring an understanding and competence profit, the characteristics must be explained rather in cultural-historical context. In addition, there are **cross-cultural informational trainings**. These are used in higher education. They relate not only to a target country, but also integrate and compare multiple cultures and discuss the resulting challenges of the encounter between these cultures in an abstract form. In contrast, there are **cross-cultural interaction-oriented trainings**. Methodically simulations and role plays in actual or fictitious multicultural groups are used for this type of training. Interculturality is experienced through a personal experience of the elements of the relationship level. **Culture-specific interactional-**

³⁷ Cf. Bolten (2010), pp. 67 f.

oriented trainings are limited mostly to two specific cultures but with the same methodical approach. In the case of relocation of employees abroad intercultural challenges of the encounter of people of their home country and the specific target country can be simulated. Interaction oriented trainings have often little acceptance with executive managers because a lack of reference to reality with regard to the related situations and the contents discussed is assumed. In addition, in the case of assuming a foreign cultural role here is a risk of solely performing stereotypes. The four different types of intercultural training support acquirement of intercultural competence. None of the two basic types of methods will lead to success when applied isolated. Therefore a **combination of information and interaction** in one training appears effective.³⁸

In addition to the four presented types of intercultural training, which must be designed as separate training sessions, it is possible and meaningful to carry out intercultural personnel development measures in the form of **coaching** of the actual processes in everyday working life. During their cooperation multicultural working and project groups are accompanied by a coach and are consulted interculturally with the aim of forming a successful actual team. The coach is a professionally neutral person, whose focus lies on the interactions and communication processes between the parties, i. e. their work behavior and behavior patterns.³⁹

3.5 REFERENCES

Bannenberg, Ann-Kristin (2010): Die Bedeutung interkultureller Kommunikation in der Wirtschaft: Theoretische und empirische Erforschung von Bedarf und Praxis der interkulturellen Personalentwicklung anhand einiger deutscher Großunternehmen der Automobil- und Zuliefererindustrie. Kassel: University Press 2011. Zugleich: Kassel, Universität, Fachbereich Sprach- und Literaturwissenschaften, Dissertation 2010.

Bolten, Jürgen (2010): Interkultureller Trainingsbedarf aus der Perspektive der Problemerkennung entsandter Führungskräfte. In: Interkulturelles Lernen / Interkulturelles Training; Seite 57-76. Herausgeber: Götz, Klaus. 7. Auflage – München; Mering: Rainer Hampp 2010. Schriftenreihe Managementkonzepte, Band 8.

³⁸ Cf. Bolten (2010), pp. 67 ff.

³⁹ Cf. Bolten (2010), pp. 70 f.

Bolten, Jürgen (2012): Interkulturelle Kompetenz. 5. Auflage – Erfurt: Landeszentrale für politische Bildung Thüringen 2012.

BWI-Bau (2013): Ökonomie des Baumarktes. Grundlagen und Handlungsoptionen: Zwischen Leistungsversprecher und Produktanbieter. Wiesbaden: Springer Vieweg 2013.

Duden. <http://www.duden.de>, Zugriff: 14. Oktober 2016.

Gessler, Michael (2010): Das Kompetenzmodell. In: Handbuch Personalentwicklung. Die Praxis der Personalbildung, Personalförderung und Arbeitsstrukturierung; Seite 43-62. Herausgeber: Bröckermann, Reiner; Müller-Vorbrüggen, Michael. 3. Auflage – Stuttgart: Schäffer-Poeschel 2010.

Hofstede, Geert; Hofstede, Gert Jan (2009): Lokales Denken, globales Handeln. Interkulturelle Zusammenarbeit und globales Management. Aus dem Englischen übersetzt von Petra Mayer und Martina Sondermann. 4. Auflage – München: dtv 2009.

Kulick, Reinhard (2010): Auslandsbau. Internationales Bauen innerhalb und außerhalb Deutschlands. 2. Auflage – Wiesbaden: Vieweg+Teubner 2010. Schriftenreihe Leitfaden des Baubetriebs und der Bauwirtschaft.

Lammers, Claas-Hinrich (2011): Emotionsbezogene Psychotherapie. Grundlagen, Strategien und Techniken. 2. Auflage – Stuttgart; New York: Schattauer 2011.

Motzko, Christoph; Kochendörfer, Bernd; Löhr, Michael; Pabst, Lydia (2012): Qualitative Entwicklung der Planungsprozesse im Zeitraum 1992 bis 2012. Darmstadt; Berlin, Gutachten im Auftrag des AHO – Ausschuss der Verbände und Kammern der Ingenieure und Architekten für die Honorarordnung e. V. 2012.

Motzko, Christoph; Kochendörfer, Bernd; Löhr, Michael; Roigk, Margarete (2010): Einordnung der Leistungen Umweltverträglichkeitsstudie, Thermische Bauphysik, Schallschutz und Raumakustik, Bodenmechanik, Erd- und Grundbau sowie Vermessungstechnische Leistungen (ehemals Teile VI, X-XIII HOAI 1996) als Planungsleistungen, derzeit im unverbindlichen Teil der HOAI 2009 im Zuge der 6. HOAI-Novellierung. Darmstadt; Berlin, Gutachten im Auftrag des AHO – Ausschuss der Verbände und Kammern der Ingenieure und Architekten für die Honorarordnung e. V. 2010.

Multrus, Frank (2004): Fachkulturen. Begriffsbestimmung, Herleitung und Analysen. Eine empirische Untersuchung über Studierende deutscher Hochschulen. Konstanz, Universität, Dissertation 2004.

Niedermair, Gerhard (2012): Einleitung oder: von der Qualifikation zur Kompetenz. In: Kompetenzen entwickeln, messen und bewerten; Seite 7-22. Herausgeber: Niedermair, Gerhard. Linz: Trauner 2012. Schriftenreihe für Berufs- und Betriebspädagogik, Band 6.

Pelz, Waldemar (2013): Von der Motivation zur Volition. Gießen 2013.

Polzin, Brigitte; Weigl, Herre (2009): Führung, Kommunikation und Teamentwicklung im Bauwesen. Grundlagen – Anwendung – Praxistipps. Wiesbaden: Vieweg+Teubner 2009.

Racky, Peter (1997): Entwicklung einer Entscheidungshilfe zur Festlegung der Vergabeform. Düsseldorf: VDI 1997. Schriftenreihe Fortschritt-Berichte VDI, Reihe 4: Bauingenieurwesen, Band 142. Zugleich: Darmstadt, Technische Hochschule, Fachbereich Bauingenieurwesen, Dissertation 1997.

Richard Lewis Communications (a): About Us. Cultural Types: The Lewis Model. <http://www.crossculture.com/about-us/>, Zugriff: 3. November 2016.

Richard Lewis Communications (b): The Lewis Model. Cultural Classification: Linear-active. <http://www.crossculture.com/about-us/the-model/linear-active/>, Zugriff: 22. September 2016.

Richard Lewis Communications (c): The Lewis Model. Cultural Classification: Multi-active. <http://www.crossculture.com/about-us/the-model/multi-active/>, Zugriff: 22. September 2016.

Richard Lewis Communications (d): The Lewis Model. Cultural Classification: Reactive. <http://www.crossculture.com/about-us/the-model/reactive/>, Zugriff: 22. September 2016.

Schmitz, Daniel (2016): Ein Beitrag zur Integration von Weiterbildung in das Arbeitssystem der Bauleitung eines Bauunternehmens. Darmstadt, Technische Universität, Fachbereich Bau- und Umweltingenieurwissenschaften, Dissertation 2016.

Sekretariat der Ständigen Konferenz der Kultusminister (2007): Handreichung für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe. Bonn 2007.

Sommer, Hans (2016): Projektmanagement im Hochbau mit BIM und Lean Management. 4. Auflage – Berlin; Heidelberg: Springer Vieweg 2016.

Statista. <http://www.statista.com>, Zugriff: 13. Oktober 2016.

UNESCO (2001): Universal Declaration on Cultural Diversity of the UNESCO General Conference on 2 November 2001 in Paris. http://portal.unesco.org/en/ev.php-URL_ID=13179&URL_DO=DO_TOPIC&URL_SECTION=201.html, Access on 19 December 2016.

Wiegmann, Dietlind (2009): Die Herausforderungen der interkulturellen Kommunikation für den Europäischen Kulturkanal ARTE. Leipzig, Universität, Institut für Angewandte Linguistik und Translatologie, Diplomarbeit 2009.

Wien, Andreas; Franzke, Normen (2014): Unternehmenskultur: Zielorientierte Unternehmensethik als entscheidender Faktor. Wiesbaden: Springer Gabler 2014.

CHAPTER 4

GENDER ASPECTS IN CONSTRUCTION

(K. KOSY, M. KSIĄŻEK)

Construction sector is the world's largest industrial employer. The predominant image of construction is that of a male-dominated industry and it has been acknowledged worldwide that women in the construction industry are underrepresented.

Women represent low percentage (usually no more than 20%) of the workforce in the construction sector and numbers of women who represent manual trades i.e. roofers, bricklayers and glaziers were as low as to be unmeasurable in national surveys.

It is very important to attract more women to construction industry in order to fill the skills gaps and to make changes within the industry in terms of gender segregation and enhanced productivity.

Women in the construction industry could be categorized in three groups:

- working in professional/technical positions;
- working in administrative positions; and
- working as construction staff on sites

Women in different stages of profession in construction industry can be categorized as:

- young women joining after completing education;
- women starting on with family responsibilities and to be retained in the workforce;
- women trying to return or returning to work following a career break and
- women who may join construction industry seeking a career change.

Women have inherent strengths that can positively contribute to the construction industry. Women generally:

- are perceived to have better listening skills and soft skills (English & Hay, 2015),
- are perceived to be more creative than men, they pay more attention to detail, are more thorough, are more organised, more precise and make a deeper and more thorough analysis (Fortune, 2010).
- are better at negotiating relationships and keeping the peace, while men tend to be more aggressive (English & Hay, 2015).
- traits like teamwork, politeness and multi-tasking that are considered feminine can have beneficial application on site (English and Hay, 2015).
- have stronger communication, empathy, and as compared to men they are able to response better to stress (Othman and Jaafar, 2013).
- are more likely to be innovative and flexible and adopt a participatory mode of working (Watts, 2009).
- as project managers are found to have the ability to perceive warnings, stay alert when problems or conflicts arise, picture and analyse the problem to make an appropriate decision (Othman and Jaafar, 2013).

Given the projected loss of skilled labour over the next few years, it is clear that the construction industry cannot just sit back and do nothing. It will literally run out of workers. The sector does face a challenge in recruitment; most young people have little idea of the wide range of employment opportunities available, so it is not surprising that many recruits join the industry only because a family member is already involved in construction. The industry must overhaul its recruitment campaigns and change its image and culture if it is to become an attractive modern employment choice. Like other male-dominated sectors of the economy, there are many factors that make life difficult for women: primarily, widespread and unchallenged sexism combined with the repeated undermining of their worth. Just as for women in the science, engineering and technology

sectors, women in construction need determination to stay and ride out these problems.

Trade unions are important in this regard, but have played both negative and positive roles at differing times. Sometimes they have worked to exclude women on the grounds of protecting men's jobs, while at other times they have taken an active role in recruiting and supporting them.

The industry should also wake up to the possibility of recruiting both women and men at a later stage in their life. While some roles in construction depend upon physical strength, many others require training and the expertise that comes with age and experience, yet there is an absence of funding and clear training routes for those who in later life decide to enter the trades.

The industry suffers from a lack of modern employment practices in many areas, creating problems for women and men with caring responsibilities or disabilities.

The construction industry is an extreme case in that the way jobs are structured allows greater discrimination, both direct and indirect. Learning from other disciplines that have changed the profile of their profession, such as law and medicine, should be an easy first step.

It is vital for the health of the UK economy that the problems are tackled. There are social value and community benefits to having women join the construction sector – it holds opportunities for women and girls, and also for male entrants of all ages.

The governments need to take a stronger lead in articulating the business case for change and helping to increase those programmes currently in operation. Culture change is essential to make the industry more welcoming of women; eliminating a perceived bullying culture will help everyone. Working on this would enhance the image of the construction sector, showing it as a modern and welcoming industry, somewhere to make a career. Opportunities to train and join the industry at different life stages need to be encouraged. While ensuring that young people can enter the workplace with relevant skills is important, this is not a reason to ignore others. Funding for apprenticeships and courses for those choosing a new career should be a priority for governments and industry

alike. Contractors need to ensure that those in training can secure work placement.

Retention is also vital – holding onto good workers. This includes better conditions, flexible working policies and a commitment to supporting those women who wish to go into management. This would provide an attractive career path, but also build up a more diverse management, who in their turn are more likely to attract and recruit a diverse workforce.

4.1 WOMEN AT POLYTECHNICS, INCLUDING CONSTRUCTION

One of the reasons for women's increased labour market participation and their entry into higher level occupation is the rising levels of educational attainment. The difference in achievement between the sexes starts at an early age. Educating and recruiting more women in the construction is as important as retaining them in the industry.

Percent of women in engineering

1. TU Darmstadt, which is representative for leading technical universities (TU9):

Students in Civil Engineering: Total: 2300 / 826 women (~ 35%)

2. According to the publications of Hauptverband der Deutschen Bauindustrie (Central Federation of the German Construction Industry): 30% women working in construction industry in Germany.

„Das Bauingenieurwesen hat im Vergleich zu anderen technischen Fächern mit rund 30 Prozent einen sehr hohen Frauenanteil. Hier ist die Bauwirtschaft gefragt, Modelle für die Vereinbarkeit von Karriere und Familien zu entwickeln und dies so früh wie möglich an den Universitäten zu kommunizieren. Denn wer als Frau eine Perspektive auf eine angemessene Work-Life-Balance hat, bleibt auch im Job.“

3. Statistics: Female engineers in total in Europa (Source: VDI Verein Deutscher Ingenieure) (s. figure 4.1)

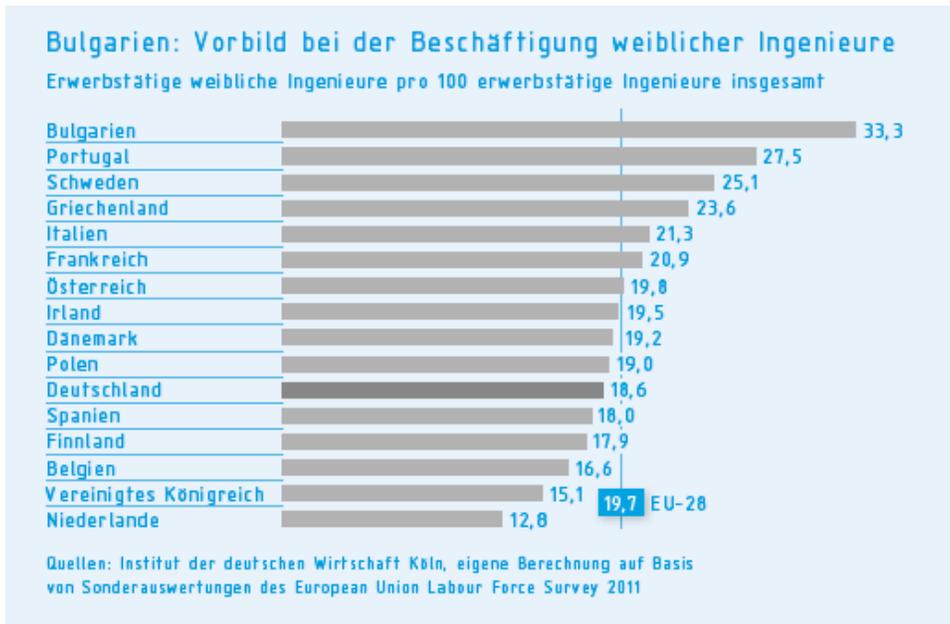


Figure 4.1. Female engineers in Europe

4.2 UNIQUE COMPETENCIES OF WOMEN

More and more companies now recognise that collaborative, rather than competitive behaviour creates more success and as such women are well placed to lead in this century. The data show women have all the right attributes including empathy, change catalyst and inspirational leadership. More than that, there are a number of reports (Cranfield, 2016) that demonstrate that companies with women on the Board perform better. There are now women on the Board of every UK FTSE 100 company.

Between the years 2006 and 2013, LeaderShape undertook some original research using its executive development tool LEIPA (Leadership and Emotional Intelligence Performance Accelerator). Based on a 360° assessment format, LEIPA collects anonymous input from individuals, their managers, peers, reports and others with whom they have a meaningful working relationship. The questionnaire compared observed against desired frequency of exhibited behav-

hours for all the Emotional Intelligence (EI) competencies set out in Goleman's model of EI and leadership styles (Goleman, 2002). Data from 161 individuals were assessed, 40% of which included women as the subjects. Ethnicity was not recorded, but all subjects were UK based at the time of the assessment and the leaders were drawn from across the private, public and notfor-profit sectors.

Although LeaderShape did not set out to focus on gender as a leadership issue, subsequent analysis of the data comparing results from men with that of women indicated some interesting similarities and differences. The model below represents the list of competencies where potentially women excel over men.

I. Task management

1. Being entrepreneurial

= Actively using opportunities and taking initiatives oneself, taking account of possible risks and costs, with an (in)direct aim being to achieve the company's objectives.

- *Using opportunities:*
 - is able to detect opportunities in market, business and customer information and actively to use them for the benefit of the company (can be broader than just commercial opportunities)
 - can understand the strategy of the bank and the market in which KBC is active with its opportunities and the market mechanisms lying behind it
- *Being a self-starter:*
 - undertakes activities even when he/she is not specifically asked to do so
 - specifically takes on the role of a "pioneer"
 - can motivate a team
- *Acting with awareness of the costs and risks:*
 - deals economically with resources and is aware of costs in planning and execution
 - takes account of risk aspects in planning and executing activities

- considers a global cost and risk control policy as a guideline for activity within the production unit and/or the company

2. Customer-orientedness

= Anticipating and examining the wishes and needs of internal or external customers and acting accordingly. Giving high priority to customer satisfaction and customer service, within the limits of the company's objectives.

- *Detection:*
 - listens to and consults customers about their needs and wishes
 - recognizes what is important for a customer
 - examines the needs of the various internal and external customer groups
- *Action:*
 - meets agreements, ensures punctual service
 - reacts quickly and appropriately if customer satisfaction and customer service suffer
 - takes proactive initiatives to optimize customer satisfaction and customer service
 - actively monitors customer-orientedness of staff and activities

3. Decision-making

= Daring to take decisions independently by expressing an opinion, taking a particular viewpoint or "taking the plunge". Also accounting for and taking responsibility for the decision taken and acting consistently with it.

- *Daring:*
 - dares to take an independent view on specific problems
 - "takes the plunge" independently
 - also decides in uncertain circumstances or if the consequences could be far-reaching
- *Sensible:*
 - takes correct and well thought-out decisions
 - acts consistently according to the decisions or viewpoints taken
 - can present broad arguments in favour of the decisions taken

- *Takes responsibility for delegated decision*

4. Achieving goals

= Setting goals for oneself, working towards the goals systematically and in a well-organized manner and sticking to them.

- *Goals:*
 - sets sufficiently high standards for him/herself
 - sets the achieving of results as a priority
 - takes charge of his/her own career
 - practises high standards and sets him/herself ambitious goals for the future
- *Achieving:*
 - works systematically and in an organized manner towards a goal
 - once activities have been started, achieves effective results
 - keeps going, even in the event of setbacks or opposition

5. Organizing efficiently

= Planning, organizing and coordinating one's own work and that of others efficiently. Managing time by taking account of priorities in accordance with deadlines and/or intrinsic importance.

- *Organizing:*
 - plans (minimally) for set or imposed activities and also tries him/herself to incorporate medium- and/or long-term initiatives in the planning
 - manages own time and supervises the organization of the employees' time
- *Efficiency:* in the planning takes account of
 - priorities: deadlines, main issues and matters of secondary importance, critical matters
 - time-quality relationship

N.B. score low here if certain tests have not been dealt with in full.

II. Information management

6. Analysing

= Obtaining understanding of and establishing connections between information, problems and situation and on the basis of these analyses arriving at a high-quality output.

- *Analysis:*
 - can analyse, penetrate and understand complex information and problems
 - acquires understanding (in detail) and sees the essential aspects of topics
 - quickly and accurately finds logic in unreliable (mathematical) information (logical reasoning power)
- *Connections:*
 - sees that data must be considered in relation to each other
 - 're'interprets the substance of a problem in the light of other information
- *Quality:*
 - provides a thorough and accurate output (independently of the 'quantity' of the output)

N.B. Even if an assignment is not completed, a candidate can still score highly on quality, if worked through, attested to by a thorough analysis. [sic]

7. Conceptual thinking ability

= Structuring information and working at a more abstract conceptual level. Reflecting and developing ideas about the future of one's own production unit and/or the company.

- *Integrative thinking ability:*
 - summarizes accurately and in a structured way a complex body of information
 - retains an overview of the whole and sees the main outlines
- *Conceptual thinking ability:*
 - can break free from the specific information and can deal at a more abstract or conceptual level with information and problems

- looks at information and problems from various angles
- thinks ahead, contributes input about the future
- is capable of cross-functional thinking
- can integrate different concepts and convert them into general policy with a positive impact in the medium and long-term (strategic thinking)

8. Innovating

= Actively seeking modernization and improvement of products, methods and/or procedures. Finding solutions to problems and/or generating new, creative ideas.

- *Thinking innovatively:*
 - actively seeks proposals and ideas that embody the modernization and/or improvement of products, methods, procedures,...
 - provides achievable solutions to problems
 - considers new concepts and introduces them on to the market
 - detects trends in the market and anticipates them actively in the company
- *Thinking creatively:*
 - introduces original and creative ideas

9. Personal development

= From a good understanding of one's own knowledge and abilities, actively endeavouring to further increase one's knowledge and abilities and to grow as a person.

- *Learning:*
 - in depth:
 - follows up one's own specialized field, both by "keeping up to date" in daily practice and by attending training courses
 - in breadth:
 - makes efforts to enhance knowledge of own specialization
 - has already undertaken further training in several areas of banking and/or economics and shows interest in doing so in the future

- *Developing:*
 - self-knowledge:
 - knows him/herself, assesses him/herself correctly, knows his/her own strengths and weaknesses
 - feedback:
 - learns from own errors and mistakes
 - asks for feedback and works on it
 - accepts criticism
 - action:
 - actively plans and takes charge of his/her own growth

10. Sharing knowledge

= From own knowledge and experience, informing others and stimulating them to develop further and/or to exchange information themselves more freely.

- *Informing:*
 - shares knowledge and expertise with others (as part of a learning organization)
 - sets the expansion of the knowledge of the staff in the team as a specific goal
- *Stimulating:*
 - encourages others to undertake further training or to share the knowledge acquired with others
 - creates the possibility for employees to exchange knowledge and experience (e.g. by planning for formal discussions of progress)

III. Interpersonal management

11. Communicating clearly

= Communicating in precise language and in a manner that is clearly suited to the situation and the customer, both in writing and orally. Making sure communication regarding substance, structure and arguments is clear.

- *Structure:*
 - provides clearly-structured oral and written communication

- speaks properly and in a well-balanced way
- adapts the style of communication to the situation and/or the client
- *Substance:*
 - conveys the "message" in a comprehensible and well-argued manner
 - communicates rationally

12. Communicating persuasively

= Through a persuasive attitude and style of communication convince one person or a group of people and win them over to an idea/point of view.

- *Persuasion:*
 - is able to get ideas accepted by others
 - defends one's own viewpoint, even against resistance
- *Attitude/Style:*
 - has an assertive attitude
 - uses an effective style of communication
 - has a natural power of persuasion
- *Negotiating successfully:*
 - finds a balance between persuading others of one's own view and remaining open to the views of others
 - tries to make compromises
 - tries to reach a win-win result in a personal interview

13. Teamwork

= Working together constructively towards a common goal, recognizing each others' skills and bearing in mind the interest of the group.

- *Consultation:*
 - listens to and consults colleagues
 - pays attention to colleagues and to mutual relationships
 - promotes team spirit
- *Group interest:*
 - in a team places the group interest above one's own interest

- behaves like a good colleague
- creates a common goal towards which the whole team works
- *Manner:*
 - shows an appropriate attitude at the appropriate time
 - adapts style to the situation

14. Building up and using network

= Building up lasting internal and external relationships in the immediate working environment and making good use of the network established.

- *Building up:*
 - builds up contacts internally and externally and maintains them
 - works on the network (knowledge of people, maintaining contacts) beyond the immediate working environment
 - actively seeks meaningful relationships inside and outside KBC
- *Making good use:*
 - makes use of this network in the event of questions and problems
 - acquires knowledge via the relationships established, creates a certain reputation, builds up connections, detects opportunities,....

IV. Personal management

15. Dealing with change

= Actively working on and supporting processes of change and modernization. Being flexible with regard to new and/or changing situations and circumstances.

- *Geared towards change:*
 - actively contributes to processes of change
 - paves the way for processes of change and supports them
- *Flexibility:*
 - adopts an attitude of mental flexibility in different situations and towards new processes and/or methods
 - dares to let go of a proposed plan of execution in changed circumstances

- has great adaptability in new situations

16. Managing stress constructively

= Adapting and continuing to work effectively in various stressful situations. Being and remaining well-balanced and self-assured.

- *Pressure of work:*
 - can do various things at the same time
 - owing to good personal management remains working reliably in a situation of growing uncertainty, greater responsibility or increasing pressure for results
- *Crises:*
 - continues to operate in situations of confrontation, resistance, criticism, setbacks, ...
 - can put things into perspective and place events in their proper context
- *Stability:*
 - comes across as calm and self-assured
 - remains well-balanced even in circumstances that could shake one's emotional stability

17. Promoting company's interests

= Bringing one's own behaviour in line with the aims, priorities and ethical standards/values of KBC.

Knowing and defending the company.

- *Knowing bank policy:*
 - knows the strengths and weaknesses of the company policy
 - keeps abreast of what is going on in the company
 - critically analyses KBC's objectives and strategies
- *Company identification:*
 - feels good in the company and stands behind the policy
 - dares to give constructive criticism internally, but defends the company externally

- *Disseminating bank policy:*
 - acts in accordance with the KBC strategy, disseminates it consistently even if it does not fully agree with the interests of one's own directorate or with one's own interests
- *Acting honourably:*
 - creates confidence in KBC by bringing one's own attitude and behavior in line with the ethical values and standards within KBC
 - meets commitments and vouches for actions and results vis-à-vis colleagues, the organization and its shareholders
 - acts discreetly with confidential information

V. People management

18. Stimulating and motivating

= Motivating staff and providing them with opportunities. Listening to them and being aware of their needs. Specifically encouraging teamwork.

- *Appreciating and stimulating:*
 - praises staff verbally for their work
 - steers employees in a particular direction
 - motivates staff
- *Providing opportunities:*
 - offers staff possibilities for growth and opportunities
 - shows confidence in employees who take on new or more responsible duties.
- *Listening and being receptive:*
 - encourages open communication with staff
 - actively asks staff about their needs
- *Teamwork:*
 - specifically stimulates and promotes teamwork
 - is aware of conflicts within a team and finds constructive solutions

19. Appraising and making adjustments

= Evaluating staff properly and openly, daring to discuss points of particular interest and making agreements about the future

- *Appraising:*
 - appraises performance properly
 - gives open, honest and comprehensive feedback
- *Making adjustments:*
 - dares to make demands of staff
 - makes agreements for the future

20. Delegating and monitoring

= Giving responsibilities to staff according to their capabilities and setting clear goals. Following up and monitoring delegated activities.

- *Delegating:*
 - delegates according to staff capabilities
 - gives responsibility
 - sets clear goals
- *Monitoring:*
 - follows up activities, projects and employees (e.g. by interim appraisals)
 - gives room to learn from mistakes (follow-up plan)
 - monitors execution and/or results of activities (e.g. by requesting feedback)

4.3 WOMEN IN MANAGEMENT

The business environment is materially changing from the economics of the '80s and '90s. 20th Century methods are beginning to struggle in this 21st century world. Reviewing the content of MBAs, leadership development programmes and philosophies right up to the end of the last century shows that the fundamentals of accepted business practice was based on competition. This informed vision, strategy, strength, power and decision-making. Companies

were built like machines with each part fulfilling its own function, mechanical raw material in, product out; a true reflection of the Industrial Revolution. The business environment in the 21st century requires businesses to be nimble and agile, both responding to rapid change and capable of anticipating what the next shift will be. They need to respond to complex, wicked problems with systemic solutions. Business leaders who will be successful will be those who can ride the wave of this increasingly changing world, harnessing the benefits of globalisation, technology and new societal attitudes to ethics and fairness. They will embrace collaborative relationships and be prepared to be radical in their thinking to build organisations that are fleet of foot and thrive on uncertainty and ambiguity. These leaders will operate beyond their ego, continuing personal development and learning. They will be able to:

- Embed authentic, ethical and emotionally intelligent behaviours into the DNA of the organisation
- Build strong, empathetic and collaborative relationships within the organisation and with all stakeholders
- Develop a performance-enhancing culture that provides sustainability

We call people that can do this Transpersonal Leaders. What relevance has this to women in leadership? A preliminary review of LeaderShape's research data (Knights, 2013) indicated that women are naturally better leaders for the 21st Century. This view is supported by a broad ranging global study by Mercer (2015 Preliminary) entitled 'When Women Thrive'.

The percentage of women working in senior management roles, October to December 2012, selected countries from the European Union. (s. figure 4.2).

The number of women working within managerial roles in the UK is slightly higher than the EU average. Focusing on occupations within the highest paid category of managers, directors and senior officials, within this latter category around a third (33%) was female in April to June 2013. Looking across the European Union and using information from Eurostat and the International Standard Classification of Occupations for the final quarter of 2012, around 34.8% of women were working as managers, slightly higher than the European Union average of 33.5%. The percentage of managers that were women was slightly lower than the UK figure in the larger economies of Spain (31%), Ger-

many (29%), and Italy (24%) but it was greater in France (39%). Across the European Union as a whole, women were most prominent within the managerial occupation group in Latvia (45%) and Lithuania (41%). The country where women were least prominent as managers was Cyprus (16%).

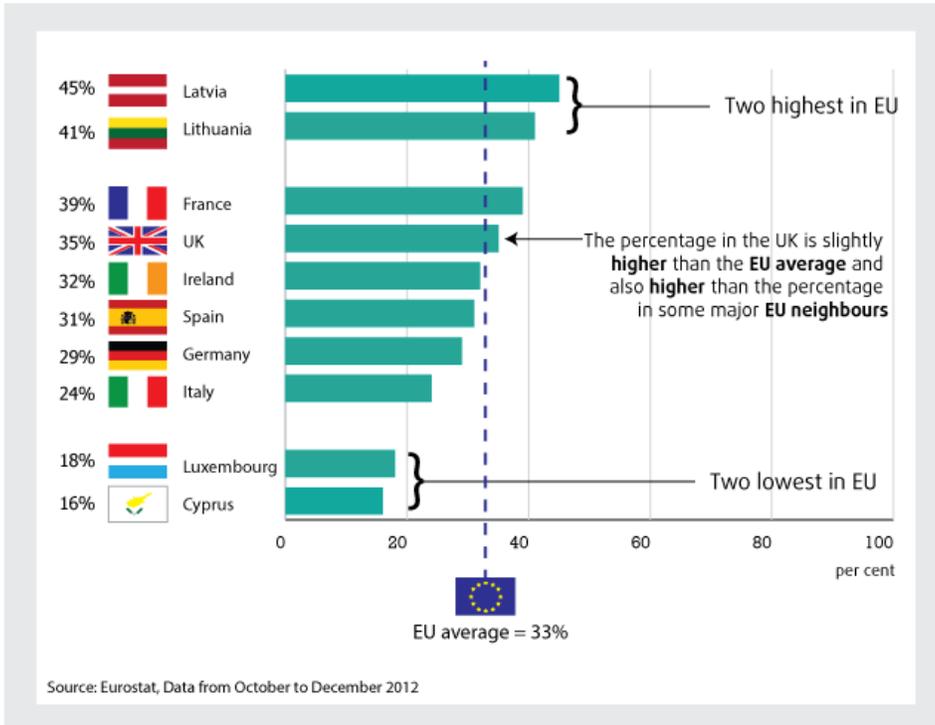


Figure 4.2. Female senior management roles in Europe

The number of women in The UK in senior roles has leapt from 6% in 2005 to 16% and one in fourteen of those in senior management positions or directorships now earns more than £75,000. Another 2% earn over £100,000 a year.

Just 3% of women now occupy traditionally “female” roles such as secretarial or support, compared to 9% in 2005 with more women entering the profession in roles such as surveyors or construction managers.

However, despite the construction industry offering competitive pay, prospects and career advancement, awareness of these benefits is not as high as it could

be. According to the 2016 Randstad Awards, a large-scale survey of more than 7,500 UK adults into employer and industry attractiveness, construction doesn't rate highly as a tempting profession to enter. No major construction firms ranked in the top 20 most attractive companies for either gender. For the numbers of women to increase, this corporate image therefore needs to change.

A third of workers believe more could be done to encourage women into those senior posts and an average of 34% feel a "glass ceiling" still stops many women from rising to the top. Overall, 77% of construction workers feel not enough is being done to address the skills gap and less than one in ten is actually undergoing any formal on-the-job training. However, a third of workers felt women had as good a chance as men of getting a pay rise or promotion.

Outside of senior management, the position is more mixed. Female architects, who once accounted for 19% of all women in construction in 2005, now number just 10%. This is partly explained by the growth of female professionals in other sectors.

A similar position is seen with female quantity surveyors, down from 13% to 12%, despite high demand for the job.

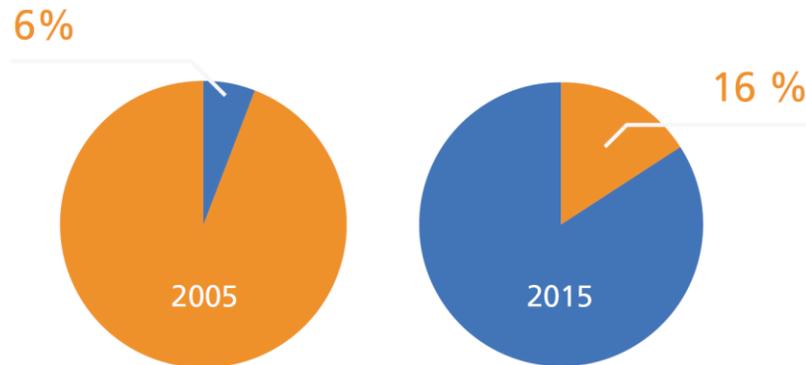


Figure 4.3. Women in construction. Source: Randstad 2015 Women in Construction Report

4.4 THE PERCEPTION OF WOMEN IN THE INDUSTRY

Records show that in medieval times, at least four trades involved women workers: carpentry, shipwrighting, plastering and plumbing. Construction is not the only industry in which women have historically done heavy work; women were down the pits with men in the 19th century. Thousands of women were re-trained to fill skilled manual jobs left vacant by men in WWI and WWII. Especially the Second World War proved beneficial for women in terms of breaking down job barriers and creating new openings.

EXPLAINING WOMEN'S EXCLUSION, UNDERACHIEVEMENT AND SUBORDINATION

Sex and gender

Distinguishing between gender and sex, people can be biologically sex typed as male or female, but a gender role is learnt or socially determined. Children develop ideas about the roles of men and women even before they start school and these are often reinforced by many different influences including parents, teachers and the media. As a result, subject and career choices may be shaped from an early age. Gender is fundamental to the culture of organizations according to known studies within other sectors (see Ledwith and Colgan, 1996 in Dainty et al., 2000). Organizations also form 'gender cultures' known to be hierarchical, patriarchal, sex-segregated, sexually divided, sex-stereotyped, sex discriminatory, sexualized, sexist, misogynist, resistant to change, and to contain gendered power structures (Newman. and Itzin, 1995). Masculinity forms a key element of any corporate culture (Dainty et al., 2000).

Barriers and Feminist/gender theories

One of the areas it specifically covers is sex discrimination at work. This can come in one of the following forms:

- direct discrimination – treating one sex less favourably than another;
- indirect discrimination – putting in place rules or arrangements that apply to everyone, but that put one sex at an unfair disadvantage;

- harassment – unwanted behaviour linked to a particular sex that violates someone's dignity or creates an offensive environment for them.

It can include, for example:

- not hiring someone;
- working conditions or rules that disadvantage one sex and are not necessary for the job in hand;
- banter or jokes that undermine someone's confidence and ability to do their job.

There are consistent differences in the occupations entered by women and men. The under-representation of women in the occupational hierarchy shows in two ways:

1. The traditional gender split in the sectoral pattern of employment, i.e. segregation of women into traditional roles, "the glass wall", with women being more likely to work in administrative and secretarial, personal services and sales occupations, and men more likely to work in manufacturing and production, has persisted for a long time and resulting in women invariably earning less than men.
2. The representation of women in many industries decreases with an increase of seniority of the position. Women occupy junior and supporting positions within high status professions (Dainty 1998). The "glass ceiling", the situation where women can see, but not reach, higher level jobs and are prevented from progressing in their careers, still exists in many occupations and industries.

An occupational stereotype is a form of sex-role stereotyping, that is, a set of assumptions about the sorts of activities and interests that are associated with the roles of men and women in society. Sex segregation effectively creates a class of jobs which is then subject to societal stereotypes (Gutek, 1988 in Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a). Segregation takes place first and is then embodied within stereotypes and cultural norms and expectations, which then serves to underpin the process of segregation. Individuals by

and large perceive an occupation as being performed principally by men or by women, and then believe it must require masculine or feminine attributes in order for an individual to be effective within that role.

Two different forms of occupational segregation by sex are observed:

- Horizontal segregation refers to the distribution of men and women across occupations, for example women may be perceived to work as maids, caretakers, nurses and secretaries and men as truck drivers and doctors.
- Vertical segregation refers to the distribution of men and women in the same occupation but with one sex more likely to be at a higher grade or level, for example men are perceived as more likely to be production supervisors and women production workers, and men are more likely to be senior managers and women junior managers. In nursing, despite women dominating the field, male nurses were twice as likely to be found in higher grade nursing posts, although females had better post-basic qualifications (Finlayson and Nazroo, 1998 in Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a; Hakim, 1992 in Anker,R. 1997).

A number of theories have been put forth over the years to explain such widespread gender segregation of occupations. The basic principle of gender theories is that women's disadvantaged position in the labour market is caused by, and is a reflection of, patriarchy and women's subordinate position in society and the family. The most frequently cited theories include, among others: Human Capital, Statistical Discrimination, Labour Market Discrimination, and Socialization theories (Becker, 1971; Mincer & Polachek, 1974; Blau, 1984; Corcoran, Duncan, & Ponza, 1984; Marini & Brinton, 1984; Mason, 1984; Strober, 1984; Reskin & Hartmann, 1986 in Gatton, D.S. and DuBois, C.L.Z. et al. 1999).

FEMINIST/GENDER THEORIES

Theories of patriarchy

The key explanation offered by the patriarchy theories for women's subordination is that segregation by occupation is used to restrict women to the 'ghetto' of

low paid work, restricting competition by raising/building glass walls and resulting in women invariably earning less than men.

Steven Goldberg's theory of the inevitability of male dominance and patriarchy based on psychophysiological processes argues that testosterone and other differences in male psychological development makes men generally more aggressive, self assertive, dominant and competitive and are a source of sex differences in motivation, ambition and behaviour. Consequently, they invariably seek to obtain the top position in any hierarchy, be it workforce, sport, politics, crime or any other area of social activity with a hierarchy of status and power that prompts competitive behaviour. He also states that men may not be necessarily able, competent or effective in using positions of power and authority, only that they are motivated to seek such positions with greater determination and persistence than women, and are more prepared to make sacrifices to get there, in terms of forgoing other activities or benefits (Hakim, 1996).

Hartmann's theory of patriarchy, male organisation and job segregation defines patriarchy as men's domination of women; specifically men's control of women's labour with explicit emphasis on occupational segregation as the key mechanism used by men to restrict and constrain women's access to income and earnings, forcing domestic division of labour with a disproportionate share of housework and childcare responsibility thus excluding them from paid work; rendering them dependent on men. This may be simply stated as male organisation to further their interests against those of women, especially to control women's work wage which remains the basis for most formulations today (Hakim, 1996).

Becker's theory of rational choices within families argues that the sexual division of labour results in men investing more in their human capital: education, training, career development and work experience. Women tend to prioritise family and choose jobs that are less demanding and compatible with domestic responsibility. This results in occupational segregation as women tend to seek jobs that are less demanding or require less responsibility (Hakim, 1996).

Theories of occupational segregation

Theories that attempt to account for the establishment and maintenance of segregation include those based on individual differences, including human capital theory; those that are based on ideas of discrimination by employers, including labour market discrimination and rational bias theories; and those that take as their central premise, the notion of systemic barriers within organisations, including intergroup and dual labour theories. While no one theory accounts single-handedly for the establishment and continuance of gender segregation, together they help to make sense of these employment phenomena. There has been relatively little empirical research to test these theories at organisational level.

There are, therefore, a number of influences which affect occupational segregation, the research shows that these are mutually reinforcing. Decisions made by individuals certainly contribute to the perpetuation of occupational segregation, but perceived occupational segregation in turn influences individuals' choices (Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a). Occupational gender-stereotyping is important to consider because of labour market outcomes especially in terms of recruitment, hiring, pay, promotion, etc. that may result from them. Further, gender-stereotyping of occupations may discourage individuals from pursuing careers in occupations typed as gender-inappropriate for them, even though they may actually be well-suited for such careers (Gatton, D.S. and DuBois, C.L.Z. et al. 1999). Descriptions of these theories are a summary of articles authored by Miller, Neathey, Pollard and Hill, EOC, Working Paper 15, Gatton and DuBois et al. 1999 and Anker, 1997.

The various theories put forward to account for continued gender segregation, restricted career advancement and lower wages for women at work may be grouped into three different categories:

- Those that focus on individual, objective differences between the sexes that account for women's relative lack of success compared with men.
- Explanations based on discrimination by employers.
- Explanations based on the existence of systemic barriers structural discrimination).

Individual differences theories suggest that objective differences between the sexes; factors such as women's attitudes, traits and behaviours prevent them from succeeding at the same rate as men. They also propose that women and men do different jobs because women and men themselves are different. However, studies that have examined characteristics which are relevant to work have in fact found few gender differences. Research (Eagly and Johnson in Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a) has focused on managers has showed that gender differences in management style revealed very few differences between male and female managers with one key exception: when democratic/participative management style was compared with autocratic/directive, women showed more participative behaviour. Secondly, working in particular jobs, individuals are constrained by socialisation into the norms and expectations of that job, substantially reducing the scope for any individual differences.

Human capital theory advocates that skills gained through education and training (opportunity cost) can alter the wages individuals receive. There is a more specific version of the individual difference theory that contends that people are rewarded for their previous investment in their own education and training. With qualifications and experience held constant, as in the case of the nursing profession, there remains an advantage for men relative to women that cannot be accounted for by differences in human capital. Therefore human capital theory clearly does not fully account for the differences in present-day patterns of employment of women and men. Women tend to prioritise family or domestic work, choosing to limit labour participation resulting in lowering their skills, qualification and experience and thus lowering their human capital value.

Explanations based on discrimination by employers

This group of theories is based on the principle that occupational segregation derives from the beliefs held by employers that differences exist between the sexes that make one sex less suitable for employment. There are two theories that explain or predict the hiring of women or other minorities where individuals or organisations condone discrimination: the labour market discrimination theory (Wells and Jennings, 1983 in Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a) and the rational bias theory (Larwood, Gutek and Gattiker, 1984; Larwood et al., 1988a, 1988b in Miller, L., Neather, F. Pollard, E. and Hill, D. 2004a).

Labour market discrimination suggests that, where employers, customers and/or employees have discriminatory tastes that is preference for either sex as employees, they hire a member of the less favoured group if they can do so at a wage discount sufficiently large to compensate for the perceived loss of utility and/or discomfort associated with employing them (Miller, L., Neather, F. Pol-lard, E. and Hill, D. 2004a).

Rational bias suggests that a manager's decision to discriminate in favour of one gender or the other in hiring or promoting employees is influenced by whether such discrimination would be viewed positively by superiors or col-leagues; that is, if there is a possibility of a manager being viewed positively by directors for choosing to hire a male rather than a female, then this is likely to increase the likelihood of the discriminatory decision being made.

Explanations based on systemic barriers

Systemic barriers may be described as structural discrimination within an or-ganisation and include two main theories:

1. **Intergroup theory** has been used by organisational psychologists to explain the relationships, i.e. actions and interactions of groups within organisations. The adapted theory proposes that there are two types of groups within organisations; 'organisation' groups, which are based on common work tasks and positions within the organisational hierarchy, and 'identity' groups, which are based on characteristics such as gender, age or race. The large overlap between these groups results in segrega-tion. Perceptions can be further distorted when the patterns of the groups reflect those of society as a whole, for example, if women are concentrated in the low status job groups or the management consists entirely of men.
2. **Dual labour market theory** says that there are two labour markets the primary and secondary labour markets. The primary labour market comprises unionized or professional jobs, with high wages, benefits, good working conditions and chances for advancement. It is generally closed to external competition or highly limited by qualifications with men predominating within this sector. The secondary labour market is

low wage with few benefits and is open to external competition. Women in part-time unstable jobs predominate in this market, where the large pool of unemployed workers keeps wages down. Poverty is generally associated with the secondary labour market.

Women are under-represented with their distribution highly skewed within the construction industry, suffering from both occupational and organisational segregation. Two-thirds work in secretarial or clerical roles with significant under-representation in the engineering and technical occupations compared to their male counterparts (Fielden et al., 2000). The barriers that prevent the entry of women into the industry begin in early socialising and education, and continue throughout training and recruitment. These barriers are further exacerbated by the industry as it continues to foster a male only image and remains entrenched in a culture which undermines the value of women (Fielden et al., 2000). Factors affecting the retention of women after their entry into the industry may be classified into two dominant categories: private life demands and working environment (Gilbert and Walker, 2001). Theoretical rationalisation has been discussed, entailing social and psychological perspectives and explaining male dominance and women's subordination leading to theories of occupational segregation and market segmentation. The most effective mechanism for subordinating women is neither exclusion from the workforce nor segregation within it, but the ideology of the sexual division of labour in the home and the ideology of sexual differences. Prisons of the mind are always more effective than prisons of the body (Hakim, 1996). Women feel forced to make a choice between career or family (Dainty et al., 2000) with an implication that they have no real choice, rather one that is dictated by society. This leads to market segregation created by forced choice for women where wage work becomes an extension of domestic work, not an alternative.

The construction industry needs to find ways to balance its requirements, as an employer, if it wants to get the best out of people with childcare responsibilities. The working hours culture needs to be replaced with flexible working. Better work-life balance is being demanded by both men and women as men now take part in child care responsibilities (Zara Lamont). The construction industry currently fails to address issues combining work and family commitment, treating them as separate.

The construction industry is facing a 'demographic time-bomb' - that is, the pool of traditional male applicants is contracting and the current workforce is ageing leading to problems of skill shortages and recruitment. Therefore, there is a need to tap into the talents of the 'other half' of the workforce; women and ethnic minorities. This appears to be the driving force to encouraging women into the industry rather than equal opportunity.

The Latham Report, reinforced by the Egan Rethinking Construction Report, affirms that construction clients are demanding industry change. They want different skills and traits, maybe inherent more in women than men. They want less confrontation and more of a 'can do' approach. They want a safe work site with zero accidents. They want a skilled workforce that cares about the quality of the product. The need is for customer-focused customer care, people with good interpersonal, understanding, empathy, facilitation and listening skills, trust, and openness. Women also possess fine motor skills and attention to detail. The Rethinking Construction Report felt that the industry was underachieving, with too many dissatisfied clients and unpredictable projects in terms of time, cost and quality. The industry has to radically change how it does business, finding the right balance between masculine and feminine traits. Thus, more women can add value in the construction industry. The supposition is that the industry must change to attract more women, but this is not necessarily correct. The industry may have to recognise and build upon the strengths and characteristics of women; this does not necessarily mean it has to change. Women are needed at all levels, in management, in design, in trade skills, and in all the various parts of the supply chain.

Recruitment is only one side of the coin; the issue of retention is the other. There are two dimensions to the issues of women in the construction industry: firstly, a woman's apparent reluctance to enter the industry and secondly, the experience and opportunities for progression on entry.

The predominant image of construction is that of a male-dominated industry requiring brute strength and a good tolerance for outdoor conditions, inclement weather and bad language. Reconciling this image with women's participation in the construction industry is problematic (Agapiou, 2002). The poor image of construction, a lack of role models and knowledge, poor careers advice, gender-biased recruitment literature, practices, peer pressure, and poor educational ex-

periences are cited as having a negative impact to women entering the industry (Gale and Skitmore, 1990).

Other structural and image related barriers militating against the entrance of women into this industry include: the dominant male workforce; exclusive networks; informal recruitment; discriminatory sexist behaviour; attitudinal barriers; long hours culture; competitive and adversarial ingrained culture characterised by masculinity; conflict and crisis; challenging, dangerous and hostile environment; facilities; training; career progression; and the present level of their participation (Dainty et al. 2004; Sommerville et al, 1993). The construction industry has a poor public image, synonymous with high cost, low quality and chaotic working practices. Women therefore tend to choose not to enter an industry that fails to acknowledge their ability, and all too often places them in a hostile and threatening environment.

The barriers encountered by women at every stage of their progression effectively inhibit the number of women entering the industry, through poor imagery and inadequate marketing, while others serve to prevent women rising up the career ladder to positions which would afford them the power of change. 'Tokenism' is a common occurrence whereby women, as a result of industry initiative, are brought in job-winning teams but do not get job-running opportunities.

Gender-based notions of the construction workplace still persist amongst men at large. Some perceived apprehensions of men towards women entering the working environment include not being equally suitable for the work or having the innate ability to use tools, understand buildings, lift heavy materials, possess natural strength and handle direct criticism or 'straight talking'. They feared trouble in the form of distraction at the job, sexual harassment litigation, and the potential for women to overreact. On the other hand, they believe that certain jobs were particularly appropriate for women like finishing jobs, plastering, tiling, joinery etc. This was based on women's aptitude for attention to detail, and good sense of design and colour and reliability. They are tidier and more careful, they tend to be more organised and work well together (Agapiou, 2002).

Men who have had experience of working with women find they are capable, they fit in well with male colleagues and they contribute to a quality outcome.

Agapiou's study indicates the existence of a cultural shift with a growing acceptance by men of women in non-traditional construction occupations: cultural values are changing and patriarchal traditions are successfully being challenged. The findings also indicate that young women are becoming more confident about entering construction craft occupations and being accepted for their contribution on an equal, but different, footing with their male colleagues.

Culture change is considered a key issue crucial to attracting and retaining women within the industry.

Men's perception of women entering the industry is equivocal with some men being territorial and reluctant to accept women's abilities and skills, while others through experience are confident of women's abilities and have a protective and welcoming attitude.

Traditional recruitment practices such as 'word of mouth' recruitment and unfair onerous terms and conditions like mobility, lack of part-time work, advertisements and brochures displaying images which reflect masculine values and interests, unstructured interviews, discriminatory selection criteria, and sexist attitudes, account for limited participation of women in the industry. The composition of the existing workforce is a result of the traditional recruitment practices. Therefore, recruitment and its gender inequalities are the responsibility of management and the continuous re-creation of an all-male workforce is questionable. It is then a very interesting question to ask whether the attitudes of the existing workforce create a real limit to what could be implemented by a management that seeks to create diversity. Support and advice to minors, parents and teachers, use of web portals, and job fairs are effective communicators in this regard.

Furthermore, the UK education system fosters a gendered route through education. Most routes into construction are via crafts and trades, higher education and professional qualification. But the educational routes require qualifications in science, engineering, and technology subjects where women are underrepresented. Thus, education becomes a gatekeeper dissuading women entrants right at the start of their careers. (Fielden et al., 2000).

The UK construction industry recently has become more proactive in retaining women in order to avoid the 'revolving doors syndrome', that is attracting people only for them to exit shortly. Part of the fault may lie in opportunities over-sold by recruitment campaigns, sheltered academic environments and an unrealistic interface between careers choice and working life within the industry. The lack of employment opportunities and limited promotion prospects contribute towards reasons for women leaving the industry. Inter-organisational mobility was seen as a necessity to circumvent barriers obstructing progress thus slowing down their career development. Women were isolated in positions of authority and over-represented in supporting roles. Cultural change in the construction workplace is also inter-linked with investment in training. Clarke et al. in Agapiou, 2002 found close relationships between firms that invest in the development of equal opportunities and development of training. Women do not enjoy career success commensurate with their male counterparts. Women entrants are, by nature of their non-traditional choice, an atypical group. They tend to be ambitious and high academic achievers, therefore a lack of progression quickly leads to disillusionment and dissatisfaction leading to their exit from the industry. They progress at slower rates and are confronted by a number of obstacles to their development.

Other elements like communication, management of human relations, gender issues, business awareness etc. need to be integrated in training to help women meet the added pressures of the workplace, which would help improve overall working practices and performance in the industry.

The role of educational institutions as gatekeepers should be critically reviewed to encourage future entrants into the industry, making construction a career choice for everyone, including women. Men in the industry who act as gatekeepers, resisting changes that threaten their organisational powers, should be made aware of the potential benefits that follow from allowing a mix of perspectives. Raising standards right across the industry is the only way to change the industry in terms of image, reputation, working environment, health and safety, recruiting and retaining the best.

Various campaigns are slowly helping to change awareness.

- Construction Youth launched its 'Not Just for Boys' campaign in September 2015, targeting young people and focusing specifically on the misconception that construction careers are only for men.
- The Construction Industry Training Board (CITB), whose board members are now predominantly female, is also working closely with the industry and educational establishments to change its problematic image and improve recruitment.
- And UCATT, the UK's only trade union specialising in construction, has been running a 'Women Get Women' recruitment campaign aimed at dramatically increasing its female construction worker members by its 2016 National Delegates Conference.

4.5 WOMEN'S CHOICES ON CAREER PATHS IN CONSTRUCTION

The consistently higher numbers of women undertaking full-time construction training in colleges in Britain and in other European countries than are found in construction employment indicates that many women do want to work in the industry but fail to obtain entry.

The obstacles to their integration have in various research studies been shown to include inappropriate and poor working and employment conditions, especially long working hours, discriminatory recruitment practices based on word of mouth rather than qualifications, the persistence of a macho culture, and short-term concerns with output. As indicated in our sweep through time, lack of state regulation and of employer responsibility and the very nature of the training system and the labour market have also played important roles.

There are, however, new factors contributing to a transformation in the industry and suggesting that the issue of greater female participation in the construction sector needs to be revisited and given renewed energy. These include:

- In the first place, imperatives for low-energy construction, which requires greater educational input to achieve thermal literacy, broader qualification profiles to overcome interfaces between the activities of

different occupations, and integrated team working and communication given the complex work processes involved. This implies a transformation of the construction labour process, affecting all occupations and opening up the possibility to include more women, especially considering their generally higher educational achievements and greater presence in environmentally oriented subject courses.

- Second, the decline in apprenticeships and greater reliance on placements and internships to obtain work experience mean that employers will increasingly – as already in countries such as the Netherlands – need to recruit directly from vocational colleges, where generally a higher proportion of women is found than in the labour market.
- Third, the employment relation is undergoing transformation, including through the use of agencies, so that the old boys network on which much recruitment has up to now depended is weakening and the use of more formal recruitment practices, which are more favourable to women, is increasing.
- Fourth, European Union and social partner policy can give an added impetus to increasing the participation of women in construction, including the gender dimension of the 2020 Strategy and the European Trade Union Confederation policy for gender equality.
- And, finally, the acute need for new affordable social housing and for refurbishment of existing properties, again opens up opportunities for women to train and enter the industry.

The percentage of workers in each occupation group that are women, June 2013, UK (s. figure 4.5).

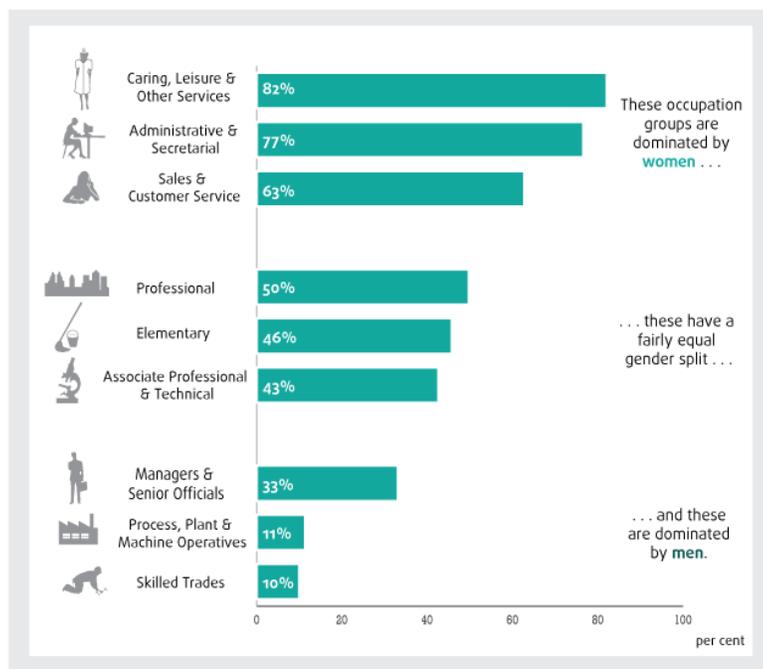


Figure 4.5. Women in construction as workers.

All in employment by industry: Women (thousands) – as an example

	All in employment	Public sector	Private sector	Construction	Professional, scientific & technical activities	Education	Human health & social work activities
Oct-Dec 2000	12,632	4,000	8,567	272	706	1,707	2,416
Oct-Dec 2001	12,772	4,068	8,647	259	748	1,691	2,483
Oct-Dec 2002	12,892	4,137	8,690	266	764	1,771	2,522
Oct-Dec 2003	13,045	4,269	8,708	288	746	1,851	2,629
Oct-Dec 2004	13,211	4,461	8,681	315	749	1,968	2,681
Oct-Dec 2005	13,327	4,507	8,775	308	794	1,971	2,819
Oct-Dec 2006	13,486	4,491	8,939	331	801	2,018	2,790

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Oct-Dec 2007	13,653	4,574	9,012	312	888	2,041	2,811
Oct-Dec 2008	13,683	4,629	8,996	331	827	2,071	2,917
Oct-Dec 2009	13,690	4,743	8,877	241	822	2,177	3,026
Oct-Dec 2010	13,670	4,696	8,894	247	785	2,277	3,032
Oct-Dec 2011	13,733	4,534	9,118	234	794	2,183	3,084
Oct-Dec 2012	13,989	4,581	9,321	233	830	2,244	3,139
Oct-Dec 2013	14,189	4,583	9,501	264	853	2,248	3,209
Oct-Dec 2014	14,538	4,519	9,935	265	882	2,305	3,253
Oct-Dec 2015	14,741	4,534	10,124	260	964	2,352	3,218
Apr-Jun 2016	14,805	4,578	10,145	282	975	2,372	3,241

All in employment by industry: Men (thousands) – as an example

	All in employment ¹	Public sector	Private sector	Construction	Professional, scientific & technical activities	Education	Human health & social work activities
Oct-Dec 2000	14,979	2,366	12,555	1,789	916	664	584
Oct-Dec 2001	15,088	2,282	12,744	1,891	933	654	601
Oct-Dec 2002	15,272	2,343	12,866	1,917	980	704	619
Oct-Dec 2003	15,313	2,392	12,845	1,992	1,000	747	653
Oct-Dec 2004	15,517	2,419	13,018	2,088	974	750	739
Oct-Dec 2005	15,610	2,532	13,008	2,101	1,024	785	740
Oct-Dec 2006	15,790	2,449	13,276	2,212	1,024	795	731
Oct-Dec 2007	15,987	2,444	13,467	2,225	1,064	799	720
Oct-Dec 2008	15,909	2,538	13,293	2,233	1,022	777	830

Oct-Dec 2009	15,477	2,581	12,814	2,070	1,064	868	820
Oct-Dec 2010	15,720	2,582	13,035	1,991	1,097	843	852
Oct-Dec 2011	15,672	2,436	13,158	1,939	1,104	838	843
Oct-Dec 2012	15,985	2,404	13,430	1,916	1,138	897	853
Oct-Dec 2013	16,173	2,322	13,724	1,936	1,242	847	860
Oct-Dec 2014	16,484	2,384	13,982	2,004	1,253	929	889
Oct-Dec 2015	16,876	2,365	14,407	2,005	1,241	977	912
Apr-Jun 2016	16,856	2,355	14,414	2,034	1,321	925	914

Source: Labour Force Survey – Office for National Statistics, UK

Women dominate employment within caring and leisure occupations. Looking within each of the occupational groups women dominate employment within occupations within caring and leisure, accounting for 82% of those within these occupation types. The next most common occupations that women dominated were admin and secretarial roles and sales/customer service occupations. At the other end of the scale, women were in the minority within skilled trade occupations, accounting for just 10%, followed by roles within manufacturing such as process, plant and machine operatives.

4.6 REFERENCES

Bynum, E.B. (1992) A brief overview of transpersonal psychology, *The Humanistic Psychologist*, Volume 20, Issue 2-3

Cranfield School of Management (2016) *The Female Board FTSE Report 2016*, Cranfield

Davies (2015) *Improving the Gender Balance on British Boards: Women on Boards Davies Review Five Year Summary October 2015*

Deloitte, *Women in the Boardroom: A Global Perspective (2015)*
www2.deloitte.com/content/dam/Deloitte/global/Documents/Risk/gx-ccg-women-in-the-boardroom-a-global-perspective4.pdf

Goleman (2002), *Primal Leadership*, Harvard Business School Press

Knights, J. (2011) *The Invisible Elephant & the Pyramid Treasure*, TomorrowsCompany www.leadershape.biz/invisible-elephant

Knights, J. (2013) *Women: Naturally Better Leaders for the 21st Century*, LeaderShape Global Limited

Terjesen, S. & Sealy, R. (2016) Board Gender Quotas: Exploring Ethical Tensions from a Multi-Theoretical Perspective, *Business Ethics Quarterly*, vol. 26, no. 1, pp. 23-65

Wall, T. & Knights, J. (2013), *Leadership Assessment for Talent Development*, Kogan Page

Zarya, V. (2016) 1 in 3 Tech CEOs Don't Think Gender Diversity Is Important *Fortune* Feb 24, 2016

CHAPTER 5

COMMUNICATION IN CONSTRUCTION

(K. KOSY)

5.1 COMMUNICATION CHANNELS

In an organization, information flows forward, backwards and sideways. This information flow is referred to as communication. Communication channels refer to the way this information flows within the organization and with other organizations. In this web known as communication, a manager becomes a link. Decisions and directions flow upwards or downwards or sideways depending on the position of the manager in the communication web. For example, reports from lower level manager will flow upwards. A good manager has to inspire, steer and organize his employees efficiently, and for all this, the tools in his possession are spoken and written words. For the flow of information and for a manager to handle his employees, it is important for an effectual communication channel to be in place.

Through a medium of communication, be it face-to-face conversations or an inter-department memo, information is transmitted from a manager to a subordinate or vice versa. An important element of the communication process is the feedback mechanism between the management and employees. In this mechanism, employees inform managers that they have understood the task at hand while managers provide employees with comments and directions on employee's work.

5.1.1 Importance of a Communication Channel

A breakdown in the communication channel leads to an inefficient flow of information. Employees are unaware of what the company expects of them. They are uninformed of what is going on in the company. This will cause them to become suspicious of motives and any changes in the company. Also without effective communication, employees become department minded rather than company minded, and this affects their decision making and productivity in the

workplace. Eventually, this harms the overall organizational objectives as well. Hence, in order for an organization to be run effectively, a good manager should be able to communicate to his/her employees what is expected of them, make sure they are fully aware of company policies and any upcoming changes. Therefore, an effective communication channel should be implemented by managers to optimize worker productivity to ensure the smooth running of the organization.

5.1.2 Types of Communication Channels

The number of communication channels available to a manager has increased over the last 20 odd years. Video conferencing, mobile technology, electronic bulletin boards and fax machines are some of the new possibilities. As organizations grow in size, managers cannot rely on face-to-face communication alone to get their message across. A challenge the managers face today is to determine what type of communication channel should they opt for in order to carryout effective communication. In order to make a manager's task easier, the types of communication channels are grouped into three main groups: formal, informal and unofficial.

5.1.3 Formal Communication Channels

A formal communication channel transmits information such as the goals, policies and procedures of an organization. Messages in this type of communication channel follow a chain of command. This means information flows from a manager to his subordinates and they in turn pass on the information to the next level of staff. An example of a formal communication channel is a company's newsletter, which gives employees as well as the clients a clear idea of a company's goals and vision. It also includes the transfer of information with regard to memoranda, reports, directions, and scheduled meetings in the chain of command. A business plan, customer satisfaction survey, annual reports, employer's manual, review meetings are all formal communication channels.

5.1.4 Informal Communication Channels

Within a formal working environment, there always exists an informal communication network. The strict hierarchical web of communication cannot function efficiently on its own and hence there exists a communication channel outside

of this web. While this type of communication channel may disrupt the chain of command, a good manager needs to find the fine balance between the formal and informal communication channel. An example of an informal communication channel is lunchtime at the organization's cafeteria /canteen. Here, in a relaxed atmosphere, discussions among employees are encouraged. Also managers walking around, adopting a hands-on approach to handling employee queries is an example of an informal communication channel. Quality circles, team work, different training programs are outside of the chain of command and so, fall under the category of informal communication channels.

5.1.5 Unofficial Communication Channels

Good managers will recognize the fact that sometimes communication that takes place within an organization is interpersonal. While minutes of a meeting may be a topic of discussion among employees, sports, politics and TV shows also share the floor. The unofficial communication channel in an organization is the organization's 'grapevine.' It is through the grapevine that rumors circulate. Also those engaging in 'grapevine' discussions often form groups, which translate into friendships outside of the organization. While the grapevine may have positive implications, more often than not information circulating in the grapevine is exaggerated and may cause unnecessary alarm to employees.

A good manager should be privy to information circulating in this unofficial communication channel and should take positive measures to prevent the flow of false information. An example of an unofficial communication channel is social gatherings among employees.

In any organization, three types of communication channels exist: formal, informal and unofficial. While the ideal communication web is a formal structure in which informal communication can take place, unofficial communication channels also exist in an organization. Through these various channels, it is important for a manager to get his/her ideas across and then listen, absorb, glean and further communicate to employees.

5.2 COMMUNICATION IN TEAMS

In order to gain all the benefits of a team working in an organisation, different types of teams will be formed once the organisational goal has been established. The use of different groups may also depend on the context of the working environment. Teams and working groups may be differentiated according to whether they are formal or informal, which usually depend on whether they have been created by the organisation or self-selected. Informal groups may be termed as interest groups, where people voluntarily share common interests, or friendship groups, which are formed to satisfy social needs. More recently, those who have a need or desire to share knowledge or develop their learning through shared experiences have become known as communities of practice. Teams may be classified into the following types:

- Self managed work teams,
- Cross cultural teams,
- Research and development teams,
- Problem solving teams,
- Cross-functional teams,
- Task force or command groups,
- Virtual teams,
- Communities of practice.

In self-managed work teams, each team member has the authority or autonomy to achieve their specific component of the task or agreed team goal. The team is given the freedom and empowerment to undertake the task, so the team as a whole becomes mutually responsible for the outcome. Obviously the management team and organisation has to be committed to allow the team to develop and learn through its own decision-making processes and mistakes. Management should provide the appropriate framework and structure to support the team and appoint clearly defined tasks so the teams can succeed. Many large companies now use self-managed work teams. They are argued to improve productivity and quality of performance as the team members assume the tasks collectively and so there is no need for a leader. Such teams are more likely to be cross-trained to perform any task in a project.

Cross-cultural teams have become common practice in many companies. However, some research has identified that the cultural differences in such teams may cause a number of difficulties, including conflict, misunderstanding and poor performance. Contrary to such reports, more and more companies run successful cross-cultural teams with multinational management teams, which suggests that cultural diversity does not necessarily lead to poor performance. Cultural diversity may even present an advantage by giving managers a broader range of perspectives for managing complex cultural systems.

Research and development teams are normally used where there is a need for specialist expertise and knowledge to develop innovative products or approaches. These teams are usually employee-driven and are formed on the basis of members' creativity, knowledge and experience in a given field. R&D teams can often become overly subscribed and can be too large, in which case:

- People spend more time in communicating knowledge to others than applying their own knowledge to solving problems or being innovative,
- People's individual performance is reduced,
- Team performance decreases.

Problem solving teams are often brought together to solve one particular problem. They might, for instance, discuss ways of improving quality and efficiency. The team may consist of individuals from the same department, or a group of people pulled together from several departments to solve a more strategic problem.

The process through which group norms are adopted (or rejected) is known as group socialisation. It is characterised by four stages of development, plus a fifth stage after completion.

1. Forming is the first stage, where members are beginning to establish interpersonal relationships, conforming to standards and boundary testing in different relationships. It is the stage when they are establishing how people should behave and so norms will start to be created.
2. Storming is the second stage, where conflict is likely to arise because of differences in personality, learning or cultures. This is the breaking-in stage where there may be resistance to group influence and task re-

quirements, or there may be power struggles for control or leadership of the group.

3. Norming is the settling-in stage, where often a single leader emerges and how they should behave towards each other.
4. Performing is the stage of development where members should be interacting well enough to be effectively performing their tasks together, roles should be well-established.
5. Adjourning applies to groups who have completed their task or fulfilled their aims; for example who have produced the new product or building. As member turnover changes, the initial group may disband to be reformed to include newcomers, and then the development process starts again.

Teamwork phenomenon's

GROUP KNOWS MORE

Knowledge of individual members sums in this way that the group can fill in the gaps that would be incurred by a separate individual employee. In solving specific tasks the group can find new possibilities. Group knowledge is greater than the sum of the knowledge of individuals.

GROUP PROMOTES

Increases the level of performance of individual employees and the requirements posed, and the sense of the interests of the team.

GROUP ALIGNS

A single worker can be more subjective to emotional stress and a smaller range of knowledge. The group helps in relation to emotion and is therefore more objective.

GROUP THINKING

Begins to count more group cohesion and solidarity between its members than the reality of work and ideas created, which might lead to suppress essential facts and making wrong decisions.

SOCIAL IDLENESS

The weakening of the results of the team due to impossibility of performance evaluation of its individual members, especially when there is a simpler task.

GROUP POLARIZATION

The tendency to take more extreme decisions by the team than the initial beliefs of its individual members.

COMMUNICATION DIFFICULTIES

In their sources are usually poorly developed communication systems, excessive noise, lack of openness to the arguments of others, excessive emotions and different understanding of the terms and the whole situation.

CONFLICTS

Mainly due to the need to share limited resources, poorly defined division of labor, difference of individual approach and occupying different positions.

THE STRUGGLE FOR POWER

Concerns emerging leaders in the team itself or candidates for this position.

5.3 COMMUNICATION IN CHANGE MANAGEMENT

Every successful executive, who has led a change management effort, in my experience, makes this statement in retrospect. Communication is one of the toughest issues in organizations. Effective communication requires all components interworking perfectly for shared meaning.

1. What is the change?
2. How difficult or complex is the change?
3. Who is impacted by the change?
4. How are they impacted?
5. Why is the change necessary?
6. How do you anticipate those impacted by the change will react?

Recommendations about communication for effective change management

Develop a written communication plan to ensure that all of the following occur within your change management process.

- Communicate consistently, frequently, and through multiple channels, including speaking, writing, video, training, focus groups, bulletin boards, Intranets, and more about the change.
- Communicate all that is known about the changes, as quickly as the information is available. (Make clear that your bias is toward instant communication, so some of the details may change at a later date. Tell people that your other choice is to hold all communication until you are positive about the decisions. This is disastrous in effective change management.
- Provide significant amounts of time for people to ask questions, request clarification, and provide input. If you have been part of a scenario in which a leader presented changes, on overhead transparencies, to a large group, and then fled, you know what bad news this is for change integration.
- Clearly communicate the vision, the mission, and the objectives of the change management effort. Help people to understand how these changes will affect them personally.

- Recognize that true communication is a conversation. It is two-way and real discussion must result. It cannot be just a presentation.
- The change leaders or sponsors need to spend time conversing one-on-one or in small groups with the people who are expected to make the changes.
- Communicate the reasons for the changes in such a way that people understand the context, the purpose, and the need. Practitioners have called this: “building a memorable, conceptual framework,” and “creating a theoretical framework to underpin the change.”
- Provide answers to questions only if you know the answer. Leaders destroy their credibility when they provide incorrect information or appear to stumble or back-peddle when providing an answer. It is much better to say you don’t know, and that you will try to find out.
- Leaders need to listen. Avoid defensiveness, excuse-making, and answers that are given too quickly. Act with thoughtfulness.
- Make leaders and change sponsors available, daily when possible, to mingle with others in the workplace.
- Hold interactive workshops and forums in which all employees can explore the changes together, while learning more. Use training as a form of interactive communication and as an opportunity for people to safely explore new behaviors and ideas about change and change management. All levels of the organization must participate in the same sessions.
- Communication should be proactive. If the rumor mill is already in action, the organization has waited too long to communicate.
- Provide opportunities for people to network with each other, both formally and informally, to share ideas about change and change management.

- Publicly review the measurements that are in place to chart progress in the change management and change efforts.
- Publicize rewards and recognition for positive approaches and accomplishments in the changes and change management. Celebrate each small win publicly.

Effective change management can help successfully implement any change necessary for future prosperity and profitability.

5.4 COMMUNICATION AUDIT IN A COMPANY

5.4.1 Effective Communications Audit

An effective Communications Audit will identify:

- how past communications were handled
- key audiences, what they currently know about your business, service, product or organization, what they need and want to know and how they prefer to be reached
- strengths and weakness in current communications programs
- untapped opportunities for future communications

5.4.2 Communications Audit questions

A Communications Audit will ask the following questions:

- What are our current goals and objectives for communications?
- How well is the current Communications Plan working?
- Are our messages clear and consistent? Do we have a coordinated graphic identity?
- Are we reaching key audiences with our messages and moving them to action?
- What communications have been most effective?
- What do customers think of our communications?
- Do our communications support our overall strategic plan for our business or organization?

- What would make our communications more effective in the future?
- What communications opportunities are we missing?

5.4.3 10 steps of Communications Audit

Step 1: Determine key areas to be audited.

Step 2: Choose your research methods.

Step 3: Collect and evaluate your past communications.

Questions:

- How did we inform the public about our business? What worked? What didn't?
- Were our graphics coordinated and messages consistent?
- Who were our key audiences?
- What were our key messages?
- Did we reach our audiences with the right messages?
- What media coverage did we receive? Was it effective? What media opportunities did we miss?
- Did we successfully tell our story in our communications?

Step 4: Look outward: Query your customers.

Choose neutral researchers to query your customers. Electronic surveys, one-on-one interviews, telephone interviews or focus groups are a few techniques. Select a limited number of questions to analyse your communications from your customer's point of view. Ask: What are your impressions of our communications? What do you think of our graphics, identity pieces, Web site and other marketing materials? How could we improve our communications?

Remember the saying, "a complaint is a gift." (This is the title of Janelle Barlow and Claus Moller's classic, highly recommended book about responding to customer feedback.)

Step 5: Look outward: Query your community.

What does the community know and perceive about your organization? Take a broader look at the impact of your communications. Again, ask questions to reveal public perceptions. This can be achieved by hiring a research firm or an objective person to conduct a formal community survey or by informally interviewing community members.

Step 6: Look inward: Query your staff and volunteers.

Don't forget your internal audiences. Collect their opinions about your communications. Ask: What are your reactions to communications during the past year? What was effective? What wasn't? What could be improved? Did internal documents serve your needs? What future communications could help you function as part of the organization? You will need to determine if all communications were understood by all internal audiences. And examine how your internal audiences present your organization to the public. Do all employees have an accurate, consistent "elevator speech" about your organization? Do you speak as one voice?

Step 7: Analyse your media coverage.

Keep all your press coverage in a media binder. This can include television and radio tapes and/or transcripts and Web coverage. As in Step 3, spread your media coverage around a table. Include articles and paid ads. Look at the frequency and reach of your coverage. What is the tone and impact? Are your key messages being promoted? Are your audiences being reached? What media opportunities have you missed? To oversee coverage, contract with a news monitoring service or use Google's free Media Alerts to track your coverage in the press, blogs and Web sites.

Step 8: Conduct a SWOT (strengths, weaknesses, opportunities, threats) analysis.

Pull your data together from the previous steps. Do a SWOT analysis of your communications using a simple chart. Analyse how you can capitalize on strengths, stop weaknesses, maximize opportunities and defend against threats.

Step 9: Think like a communications consultant.

Based on your findings, what would you recommend to yourself for future communications? Select a team to help you analyse your audit results and strategize about future actions.

Step 10: Put together a plan for future communications.**Table 5.1. The perception of communication effectiveness**

No	STATEMENT	RESPONSE				
1	I am clear what is expected of me at work	Never	Seldom	Sometimes	Often	Always
2	I can decide when to take a break	Never	Seldom	Sometimes	Often	Always
3	Different groups at work demand things from me that are hard to combine	Never	Seldom	Sometimes	Often	Always
4	I know how to go about getting my job done	Never	Seldom	Sometimes	Often	Always
5	I am subject to personal harassment in the form of unkind words or behaviour	Never	Seldom	Sometimes	Often	Always
6	I have unachievable deadlines	Never	Seldom	Sometimes	Often	Always
7	If work gets difficult, my colleagues will help me	Never	Seldom	Sometimes	Often	Always
8	I am given supportive feedback on the work I do	Never	Seldom	Sometimes	Often	Always
9	I have to work very intensively	Never	Seldom	Sometimes	Often	Always
10	I have a say in my own work speed	Never	Seldom	Sometimes	Often	Always

11	I am clear what my duties and responsibilities are	Never	Seldom	Sometimes	Often	Always
12	I have to neglect some tasks because I have too much to do	Never	Seldom	Sometimes	Often	Always
13	I am clear about the goals and objectives for my department	Never	Seldom	Sometimes	Often	Always
14	There is friction or anger between colleagues	Never	Seldom	Sometimes	Often	Always
15	I have a choice in deciding how I do my work	Never	Seldom	Sometimes	Often	Always
16	I am unable to take sufficient breaks	Never	Seldom	Sometimes	Often	Always
17	I understand how my work fits into the overall aim of the organisation	Never	Seldom	Sometimes	Often	Always
18	I am pressured to work long hours	Never	Seldom	Sometimes	Often	Always
19	I have a choice in deciding what I do at work	Never	Seldom	Sometimes	Often	Always
20	I have to work very fast	Never	Seldom	Sometimes	Often	Always
21	I am subject to bullying at work	Never	Seldom	Sometimes	Often	Always
22	I have unrealistic time pressures	Never	Seldom	Sometimes	Often	Always

23	I can rely on my line manager to help me out with a work problem	Never	Seldom	Sometimes	Often	Always
24	I get the help and support I need from colleagues	Never	Seldom	Sometimes	Often	Always
25	I have some say over the way I work	Never	Seldom	Sometimes	Often	Always
26	I have sufficient opportunities to question managers about change at work	Never	Seldom	Sometimes	Often	Always
27	I receive the respect at work I deserve from my colleagues	Never	Seldom	Sometimes	Often	Always
28	Staff are always consulted about change at work	Never	Seldom	Sometimes	Often	Always
29	I can talk to my line manager about something that has upset or annoyed me at work	Never	Seldom	Sometimes	Often	Always
30	My working time can be flexible	Never	Seldom	Sometimes	Often	Always
31	My colleagues are willing to listen to my work-related problems	Never	Seldom	Sometimes	Often	Always
32	When changes are made at work, I am clear how they will work out in practice	Never	Seldom	Sometimes	Often	Always

33	I am supported through emotionally demanding work	Never	Seldom	Sometimes	Often	Always
34	Relationships at work are strained	Never	Seldom	Sometimes	Often	Always
35	My line manager encourages me at work	Never	Seldom	Sometimes	Often	Always

5.5 REFERENCES

Dunette. M.D., Hough L.M.: Handbook of Industrial / Organizational Psychology. Palo Alto, CA, Consulting Psychologists Press 1991.

Hatch M.J.: Organization Theory, Oxford University Press 2006.

Koppes L.L.: Historical perspectives in industrial and organizational psychology, Lawrence Erlbaum, New Jersey 2007.

Locke E.A.: Handbook of Principles of Organizational Behavior, Wiley, London 2009.

Schein, E. H.: Organizational Behavior. New York: Englewood Cliffs, Prentice Hall 1980.

CHAPTER 6

CASE STUDIES

6.1 WOMEN AS MANAGERS IN CONSTRUCTION (D. SCHMITZ, J. KLINGENBERGER)

6.1.1 Introduction and objectives of the case study

In 2015, 7.5 million people in Germany carried out a so-called STEM profession. STEM comprises professions in science, technology, engineering and mathematics. The construction industry is an element of engineering and technology, to which 86% of all STEM experts are affiliated. The share of women among the STEM employees is lower than 15%, but the trend in recent years shows a slight increase.⁴⁰

In 2013, only 6% of the 2.4 million female working population in Germany was employed in the construction sector (see Figure 6.1). In this field the main areas of activities are construction planning, supervision and construction control as well as construction work and execution. The construction work and execution activity has an extremely low percentage of 2%, while the share of women in the area of planning, monitoring and controlling activities is nearly by 17%. In particular, among the academic professions (engineers, architects, planners, managers) there is a much higher proportion of women (26%), whereas the proportion of non-academic professions (technicians, craftsmen, restorers, foremen, site supervisors) is significantly lower at 5%.⁴¹

⁴⁰ Cf. Bundesagentur für Arbeit (2016), pp. 6 f.

⁴¹ Cf. Dummert, Sandra (2015), pp. 5 f.

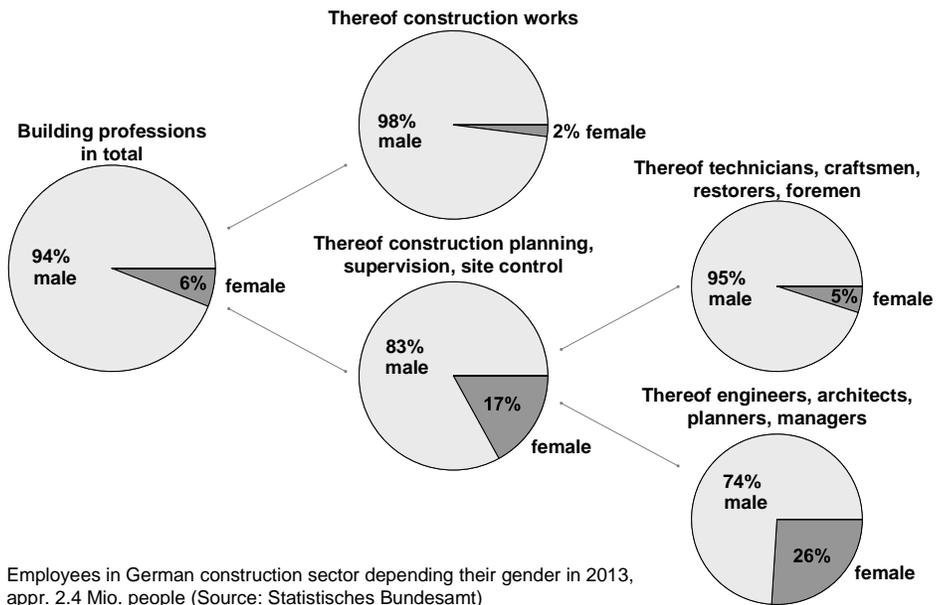


Figure 6.1: Employees in German construction sector depending their gender (2013)⁴²

On construction sites and in construction projects in Germany, women are significantly less represented than their male counterparts, although the competence-oriented prerequisites exist for both genders. During a diploma thesis⁴³ at the Institute of Construction Technologies and Management of Technische Universität Darmstadt, the situation of female executives in the German construction industry was investigated in 2016 by a survey of eight female construction managers (see Table 6.1). These employees were working for different construction companies and building owners. The investigation was done in form of guided expert interviews⁴⁴. With the help of this investigation, the specific challenges for women in the construction industry as well as, women-specific tasks and working methods should be identified and analysed. Furthermore, approaches to increase the proportion of women should be shown.

⁴² Based on Dummert, Sandra (2015), p. 6

⁴³ Cf. Waal, Margarethe (2016), pp. 42 ff.

⁴⁴ For more information about the investigation methodology see e.g. Meuser, Michael; Nagel, Ulrike (1991) and Gläser, Jochen; Laudel, Grit (2010)

Table 6.1: List of investigation partners

Female Construction Manager	Construction Sector	Size of organisation	Experience of work
1	Public Owner, Underground Construction	< 250 employees	11 years
2	Private Construction company, High-rise Buildings	> 250 employees	9 years
3	Private Owner, High-rise Buildings	> 250 employees	18 years
4	Private Construction company, Civil Engineering	> 250 employees	1 year
5	Private Construction company, Tunnelling Works	> 250 employees	2.5 years
6	Private Construction company, Street Works	> 250 employees	1.5 years
7	Public Owner, Street Works	< 250 employees	1 year
8	Private Construction company, High-rise Buildings	< 250 employees	3.5 years

6.1.2 Tasks and working styles of female employees

The range of tasks and activities as well as the working styles of women in the German construction industry were parts of the carried out expert interviews.

The tasks to be performed by women in their professional activities as construction or project manager do not differ from those of their male colleagues. They assume a similar scope of responsibility for the proper and professional man-

agement of the construction projects and fulfill these tasks through a balanced mix of competences.⁴⁵

The female experts have predominantly a participatory style of leadership. They involve the employees in the decisions making, promote independent work and take into account their ideas and suggestions for the implementation of the tasks. The team and the fulfillment of the tasks are therefore in focus; Hierarchical structures are interpreted and lived in the sense of the services to be provided. Working with representatives of subcontractors, some of the experts change into an authoritarian style of action in order to live a higher power distance.⁴⁶

6.1.3 Challenges for female construction managers

In addition to the task spectrum and the working style, the gender-specific challenges for women in the German construction industry were discussed in the expert interviews.

The professional profile of construction project managers can lead to a high personal impact due to the following characters and boundary conditions of the tasks.⁴⁷

- co-ordinate diverse and numerous services,
- rapid change of tasks,
- repeated interruptions of individual activities,
- unforeseen events, incidents, wishes and alterations,
- extensive and diverse communication,
- economic responsibility,
- project-specific deadlines and costs,
- long working days.

The surveyed experts consider that the high personal strains in combination with weekly working hours of more than 50 hours can trigger stress and make it difficult to reconcile the working life with the private and family life. As a re-

⁴⁵ For more information about the necessary competences of construction managers see Schmitz, Daniel (2016), pp. 158 ff.

⁴⁶ For more information about different styles of leadership see Polzin, Brigitte; Weigl, Herre (2009), p. 31

⁴⁷ Cf. Strobel, Gudrun; Krause, Juliane von (1997), p. 72

sult of the lack of compatibility between family and work, many women choose not to work as a construction project manager. In the opinion of the experts, part-time work is difficult to achieve in this profession. In addition, an activity as a construction manager is associated with high demands on mobility. Construction sites are temporary production sites. Furthermore stays in the employer's office are required. In the opinion of the experts, this also makes it more difficult to reconcile family and work life.

The place of work "construction site" usually provides jobs for construction site managers and project managers, as well as for foremen, merchants and trainees, in office containers with little privacy. The quality and ergonomic design of the furnishings are also usually improvable. In addition, the working equipment is to be regarded as provisional. Moreover, the work environment in the form of emissions (e.g. noise, dust) and season-related climatic changes affects the performance and workplace satisfaction of the employees. These characteristics of the workplace "construction site" are used by the female experts as criteria against the choice of the occupation as a construction manager.

The working atmosphere on construction sites is generally regarded as rough, direct and cool, but also as a collegiate. Communication between the parties is very straightforward and rustic on construction sites. Furthermore, women are often confronted with a traditional, conservative, role-stereotypic thinking behavior of their male colleagues. The experts consider that for some women these aspects are a criterion against the work as a construction site management or project manager. They deem the construction site as a male domain environment in which women are difficult to integrate because there is a lack of acceptance by male colleagues.

6.1.4 Opportunities to raise the proportion of women

A third subject area of the expert interviews were the possibilities for increasing the proportion of women in the German construction industry. The aim is to increase the attractiveness of the professional profile of a construction manager by means of organizational and behavioral changes.

The organizational measures focus on improving the compatibility of family and work. According to the experts, the aim is to make work and working hours

more flexible. Usually today, construction managers are expected to have a permanent presence, ideally an on-site presence, in order to deal with problems directly. For a more family-friendly design of the work and the working hours the experts consider a division of the tasks of the construction management to several, part-time persons. In addition, selected tasks could also be carried out independently of the location, e.g. at the employer's organization seat or in work from home.

Another organizational approach is to improve the child care provision. The care centers provided by government, church and other organizations are constantly being expanded but are often not tailored to the needs of the construction site personnel. Alternating construction sites as temporary production sites, as well as the possible spatial distance between the construction site, the organization seat of the employer and the place of residence, make it more difficult to provide childcare facilities. In addition, the German construction industry is characterized by a large number of micro-enterprises with few employees. Here childcare provisions initiated by company networks or construction associations could provide a remedy and improve the compatibility of family and work.

The female experts mention the increase in the attractiveness of the construction site by improving the design of the workplace in the office containers by means of higher-quality furnishings and better work equipment as a third organizational measure. In addition, the management of office space in neighboring buildings to the construction site could increase the workplace satisfaction of the employees and their performance.

A change in social and personal patterns of thought and prejudice can be classified as a behavioral measure. It is necessary to initiate a rethinking within the construction site staff, so that a gender neutral, respectful and fair co-operation is possible. Not the gender, but the performance of a person should be of importance. Trainings in the area of diversity management could serve as an approach to this shift.

Further behavioral changes can be supported by professional development measures. In addition to specialist skills, female construction managers need social, human and communicative competences, in particular to work together successfully and equally with their male colleagues and to stand up against

them. Especially experience-based and feedback-based methods of further education are suitable for the promotion of these competences.⁴⁸ The experts classify mentoring and coaching as suitable tools for expanding the competence in the categories mentioned.

There are also various networks for female engineers. These serve women in technical academic professions to exchange information on professional questions. They represent the interests of female engineers in the public as well as in the face of politics and society. Marketing measures, such as the "Girls' Day"⁴⁹, can help to open up technical professions for girls and women as more attractive. This is an approach to increase the proportion of female students in the field of civil engineering and in the long term to increase the number of women in the construction industry.

6.1.5 References

Bundesagentur für Arbeit (2016): Der Arbeitsmarkt in Deutschland – MINT-Berufe. Nürnberg: Eigenverlag 2016.

Dummert, Sandra (2015): Der Arbeitsmarkt im Bausektor. Branchenbericht 2014. Herausgeber: Institut für Arbeitsmarkt- und Berufsforschung; Bundesagentur für Arbeit. Nürnberg: Eigenverlag 2015.

Gläser, Jochen; Laudel, Grit (2010): Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen. 4. Auflage – Wiesbaden: VS 2010.

Meuser, Michael; Nagel, Ulrike (1991): Experteninterviews – vielfach erprobt, wenig bedacht. Ein Beitrag zur qualitativen Methodendiskussion. In: Qualitativ-empirische Sozialforschung – Konzepte, Methoden, Analysen; Seite 441-471. Herausgeber: Garz, Detlef; Kraimer, Klaus. Opladen: Westdeutscher Verlag 1991.

⁴⁸ For more information about training methods in construction see Schmitz, Daniel (2016), pp. 43 ff.

⁴⁹ Girls' Day – 'Future Prospects for Girls' initiated a large campaign in which a wide range of professions and activities is presented to girls of 10 years upwards. The vocational choices of girls are influenced in a very positive way. For companies, Girls' Day has evolved as an important instrument of their recruitment policy. For further information see <http://www.girls-day.de/english>

Polzin, Brigitte; Weigl, Herre (2009): Führung, Kommunikation und Teamentwicklung im Bauwesen. Grundlagen – Anwendung – Praxistipps. Wiesbaden: Vieweg+Teubner 2009.

Schmitz, Daniel (2016): Ein Beitrag zur Integration der Weiterbildung in das Arbeitssystem der Bauleitung eines Bauunternehmens. Darmstadt, Technische Universität, Fachbereich Bau- und Umweltingenieurwissenschaften, Dissertation 2016.

Strobel, Gudrun; Krause, Juliane von (1997): Psychische Belastung von Bauleitern. Herausgeber: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin. Bremerhaven: Wirtschaftsverlag NW; Neue Wissenschaft 1997. Schriftenreihe Forschung der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Band 778.

Waal, Margarete (2016): Frauen als Führungskräfte in der Bauwirtschaft. Darmstadt, Technische Universität, Institut für Baubetrieb, Diplomarbeit 2016.