TNO report

Two cases of workplace innovation in the Netherlands

innovation for life

September 2022

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Report for	Report for Korean Labor Institute, Seoul, South Korea
Date	September 2022
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Project number	060.52214
Report number	TNO 2022 R11792
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Executive summary

Commissioned by the Korean Labour Institute researchers of TNO carried out an investigation into two organisations that have implemented workplace innovation in The Netherlands: a non-profit home care organisation, Buurtzorg NL, and a private advanced manufacturing company, CTS.

Workplace Innovation is an integral set of participative mechanisms for interventions relating structural (e.g., organisational design) and cultural aspects (e.g., leadership, coordination and organisational behaviour) of the organisation and its people with the objective to simultaneously improve the conditions for the performance (i.e., productivity, innovation, quality) and quality of working life (i.e., wellbeing at work, competence development, employee engagement).

The two cases are different in their motivation and the goals they want to achieve. For Buurtzorg NL the service delivered to clients is a central goal, and the way to do that is to provide the employees the professional autonomy and facilities to deliver this service. As a consequence the job quality is very high as well. For CTS, the customers are central too. CTS employees want to develop the best technological solutions for them, but they also want to excel and apply the new knowledge elsewhere. They also want to perform a sustainable business, while at the same time their goal is to grow and be economically profitable.

Both organisations have in common that their workplace innovation measures are firmly grounded in change of a structural nature. These organisations have changed the organisational structure, the division of labour and management responsibility, in favour of more professional autonomy and a larger voice for the employees at shopfloor level.
This structural change was aligned by cultural adaptation, such as the style of leadership, inter-human communication and cooperation (in a team-based context), and behaviour that fits with 'mature' employment relationships. Consequently these structural and cultural adaptations enabled an easier adoption of new technology and changes, because the employees have become highly involved in redesigning the organisation and contributing to innovation. They were involved in the development and implementation of new technology. Thus technology does not take over their work but supports them in performing their work and/or makes it possible to improve the quality of the work delivered.

Apart from the case studies, a sketch of workplace innovation in The Netherlands is provided. While there is no clear and substantive policy in regarding workplace innovation, several companies have undertaken activities and implemented practices that align with the workplace innovation concept, as developed within the European context. In the past there have been policy initiatives to stimulate economic growth, jobs and innovation that stress the relevance or organisational renewal and good quality jobs of employees. Workplace innovation initiatives are largely left to the initiative of companies, industrial sectors and trade unions in the context of the political dominance of neo-liberalism.

Nonetheless it can observed that several companies take up workplace innovation in one form or another. Roughly 10% of Dutch companies are active with the implementation of similar methods and measures. Often, the companies themselves do not use the term workplace innovation (or social innovation), and they are not per se aware of the debate in the world of research, consultancy and policy making in The Netherlands and Europe.

1 Introduction

1.1 Background

The Korean Labor Institute (KLI) is carrying out an international comparative study into workplace innovation. The KLI is a government-funded research institute to serve Korea's employment and labour policies over the past 30 years. KLI has been developing employment and labour policies in a changing environment driven by industrialisation, democratisation and market opening, and seeking to explore how these polices can be implemented in a fair and efficient manner (https://www.kli.re.kr/kli_eng/index.do).

The KLI-study intends to compare workplace innovation in seven countries: Korea, USA, Japan, The Netherlands, Finland, Germany, and Sweden. The purpose is to explore what each country does. Although these countries share a comparable concept and theory of workplace innovation, each country has its own workplace innovation model. Moreover, KLI assumes that environmental changes such as digitalisation, aging, and covid-19 can also affect workplace innovation.

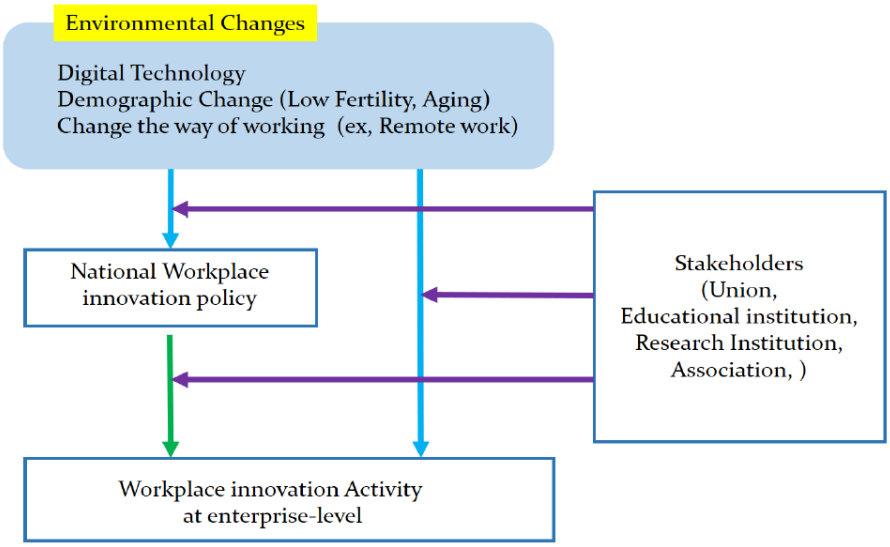


Figure 1.1 Conceptual map of the study (No et al., 2022)

KLI invited TNO to participate in the international study, and requested to provide research information with regard to workplace innovation in the Netherlands. KLI is interested in workplace innovation activities in the Netherlands and the results from WPI. The situation of WPI in the Netherlands can be meaningful to Korea. KLI is especially, keen to know 'the drive' for workplace innovation, and the facilitating factors for workplace innovation in cases from the Netherlands. KLI can then analyse if this is applicable to the creation of an environment for workplace innovation in Korea.

KLI proposed the following research model:

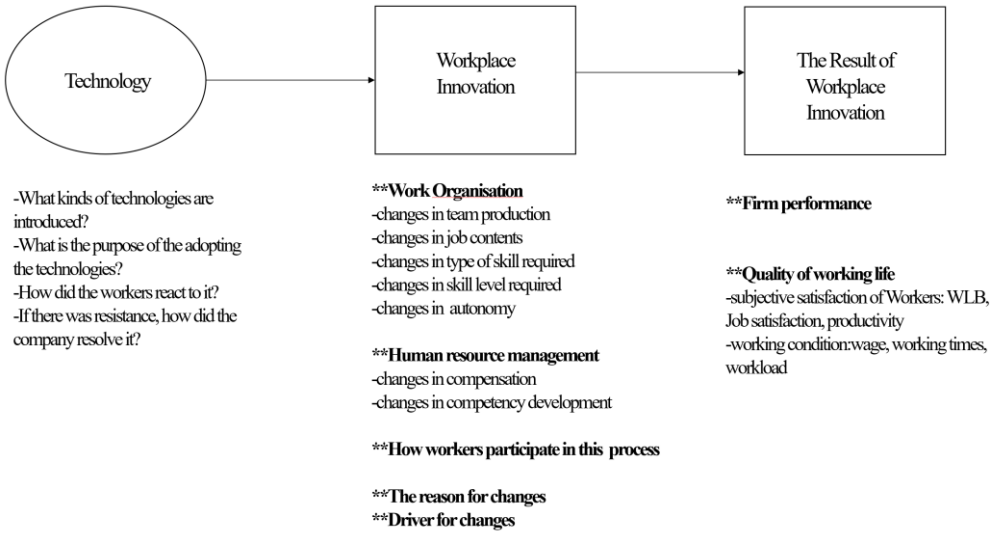


Figure 1.2 Proposed research model by KLI (No, 2022, email 6 June 2022)

The KLI-model seems to reason that technology affects WPI. WPI is seen as a combination of work organisation, HRM, worker participation and drivers for change, which would subsequently lead to changes in the firm performance and the quality of working life. In the Dutch situation we see that WPI functions different from this model. Most importantly we regard WPI as a means to moderate / mediate technology choices in its effect on firm performance and the quality of working life.
TNO therefore proposes an alternative model in figure 3.

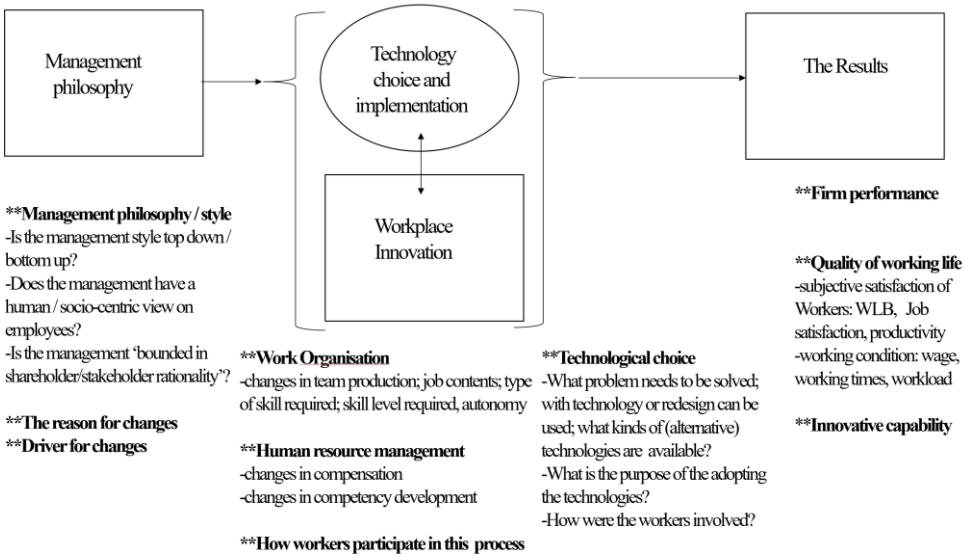


Figure 1.3 Proposed research model by TNO

Based on the Eurofound study into WPI, the model in figure 3 understands that management is mostly in the lead when it comes to (strategic) change and innovation (Oeij et al., 2015). A driver for change is often an economic reason. In our Dutch case studies it will be clear that management involves employees in the change project. This is an indication of the management philosophy that values the role of employees highly, in the sense that management is open to bottom up influence of employees instead of top down steering the

organisation (i.e. flow based decentralisation versus bureaucratic centralisation, see Kuipers et al., 2020).
This management philosophy largely determines how an organisation deals with the implementation of new technology and how that is connected to the work organisation. Technology can augment employees or restrict them, while work organisation can support good quality of jobs or eradicate employment. Sometimes, when problems or disturbances in the work process occurs, organisations can choose technological solutions but also organisational solutions. The point we want to make is that in most situations management and organisations can choose the type of solution they prefer, even when the room to play is limited by reasons of competition and financial means (Oeij, 2019; Oeij, 2022). This interplay between technological and organisational choices will influence the results: firm performance, quality of working life, and innovative capability. It makes a difference for these results, whether or not employees have meaningful jobs. The transition from Industry4.0 to Industry5.0 demarcates a shift to human-centric approaches. Technology should be beneficial/supporting to humans. Otherwise, they will not adopt it (Oeij et al., 2019; 2022). However, since technology is context-related, which goes beyond the direct interaction with persons, technology should be sociocentric (Dhondt & Dessers, 2022: 36): decision-making about technology and innovation affects the work environment beyond single individuals. Workers, suppliers, and consumers are all affected.
Therefore, the working definition of workplace innovation connects the ideas of supportive management, work organisation, employee involvement in the pursuit of good performance and good jobs: “Workplace Innovation is an integral set of participative mechanisms for interventions relating structural (e.g., organisational design) and cultural aspects (e.g., leadership, coordination and organisational behaviour) of the organisation and its people with the objective to simultaneously improve the conditions for the performance (i.e., productivity, innovation, quality) and quality of working life (i.e., wellbeing at work, competence development, employee engagement)” (Oeij & Dhondt, 2017: 66).

The methodology for this report consisted of desk research (based on existing literature and websites) and an additional interview with a key representative of the studied cases. We first made a description of each case, which was sent to the key representative. Subsequently we carried out an interview to check our information and to complete missing information. We then re-worked the case description and send it to the interviewed key representative for approval. The period of research was June-September 2022.

1.2 Content of the report

This report presents two cases of organisations that implemented workplace innovation in the Netherlands. Chapter 2 describes the case of DistrictCare NL (Buurtzorg Nederland), which is a home care organisation for district nursing, mainly for elderly persons, sick persons, recovering patients and persons who prefer to live on their own but require help. DistrictCare transformed from a larger bureaucratic organisation into a teambased clientoriented organisation. Chapter 3 elucidates CTS, a Creative producer/ manufacturer of Technological Solutions (pseudonym), which is an advanced manufacturing company. It changed its production method and organisational structure, and created highly professional teams and projects conducive to enhancing creativity and innovation.
Our description emphasizes the organisational changes and how this affected performance, job quality and innovation. While these are examples that fit with the concept of workplace innovation, these organisations do not use that terminology.

Each of the cases follow the structure below:

1) Description company and history
   a) Goal of the company
   b) Employees /staff
   c) Industry
   d) Context

2) Why is this case a good example of workplace innovation?
   a) Description of the workplace innovation itself
   b) Structure of the work organisation
   c) Employee engagement

3) What is / are the driver(s) for WPI in this company?
   a) What was the problem that required a change, that lead to a WPI-solution?

› Why do these companies voluntarily innovate their workplace in such way, that it promotes workers participation / engagement?
› Why and how do these companies value their workforce?
› Does the autonomy of employees continue to be important in corporate innovation? If so, Why and How?

4) What was the process of the implementation of WPI?
   a) The role of employees: -How did the company motivate the workforce to contribute to innovation?
   b) Management-perspective on change (centralisation / top down – decentralisation / bottom up)

5) What are the effects and results of WPI?
   a) Better products / service / performance (Effectiveness)
   b) (Cost) Efficiency
   c) Better quality of labour
   d) Innovative capability

6) What is the effect of WPI on (technological) innovation and process innovation?

› What is the relationship between technological innovation and workplace innovation that can be seen in these companies?
› How does WPI influence technological innovation and innovative capability?

In chapter 4 we discuss some main elements of the practice of WPI in the Netherlands. Chapter 5 offers a conclusion and recommendations.

2 Case 1: Buurtzorg NL

2.1 Description company and history

a) a.Goal of the company
b) b.Employees /staff
c) c.Industry
d) d.Context

Buurtzorg NL delivers neighbourhood nursing care to people who need care while staying at their homes.
The sources used for this chapter are the public website of the foundation, several articles and books in which Buurtzorg among other cases is presented as best practice and two films/videos. In addition an interview was held with the CEO of Buurtzorg.

Buurtzorg NL was not deliberately created and developed as a case of workplace innovation relative to traditional home care, but it can – looking back – be described in terms of an innovative strategy, structure and culture that are characteristic for workplace innovation.

This section describes the company's main characteristics, such as its goal, products, staff, industry and context. Buurtzorg literally means care in the neighbourhood.

Neigbourhood nursing care
Buurtzorg nurses operate in self organising teams of 10 to 12 nurses and nurse assistants. The purpose at Buurtzorg is to deliver the best possible care and attention to the client, based on the nurses' craftmanship. They want to 'help people to live meaningful, autonomous lives'. 'Care' is seen as both personal and professional and the client as a person with a body, a soul and a social network (a 'holistic view'). The professionals try to mobilise and coordinate the family and friends, the neighbours and the institutions in the neighbourhood to pay attention to and help the client.

Now in 2022, Buurtzorg employs more than 14.000 professionals working in over 1200 self-organising teams delivering care to 75.000 clients. Turnover is 350 milion euro. There are 50 persons in the back office, to do the financial -, client -, staff- and production administration, two directors and 20 coaches throughout the country (Figures: interview Jos de Blok, 2022; Bernstein et al., 2022, 2022).

History
Neighbourhood nursing care actually has a long history in the Netherlands. Since at least the eighteenth century, almost every neighbourhood in The Netherlands had neighbourhood nurses, employed by cross associations. They provided care outside the hospitals ('extramural care', home care), visiting the sick and the elderly at their homes.
During the last decades of the past century, the social security system increasingly took over the costs of the system. In the 1980s, the Dutch government moved towards a neo-liberal strategy: if all the nurses could be grouped into large organisations, economies of scale would kick in, generating savings for the taxpayer. Nurses were pushed to affiliate with large organisations that started implementing 'modern management practices' (Laloux, 2016). Organisations were designed from a mechanistic perspective, with a detailed division of labour. Different nurses were now dispatched to clients every day. There were introduced central call centra in headquarters, now that clients could no longer call 'their' nurse directly.

Then, it was decided to have the nurses specialise. More experienced nurses must be paid more, so they were sent to do only the more difficult, medical interventions. All the rest—simpler tasks like shots and bandages—was now pushed to less expensive nurses or nurse assistants, resulting in further cost savings. Planning departments developed time norms for specialised tasks. Soon, for every single treatment another (assistant) nurse could hop in for say, 10 minutes. Several layers of managers were needed to coordinate, manage, monitor and improve nurses' performances.
From that time on large Tayloristic and bureaucratic organisations for home care grew in The Netherlands.

The Foundation

Buurtzorg was a reaction to this development of the last decennia and was inspired by the district nursing of the cross unions in the period before. Buurtzorg was founded in 2006 by three nurses: Jos de Blok (now one of the two directors / CEOs), Gonnie Kronenberg (now the second director and responsible for the back office) and Ard Leferink (now leading Ecare, the IT partner of Buurtzorg). Buurtzorg started with one team of nurses.
It is a Foundation, a not for profit organisation.

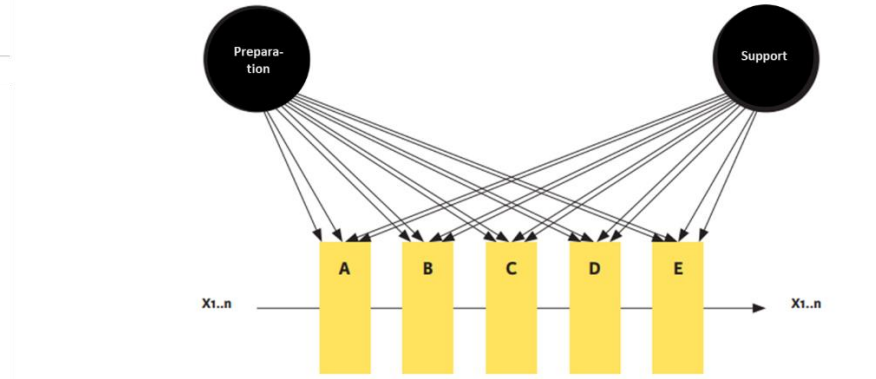
2.2 Why is this case a good example of workplace innovation?

a) Description of the workplace innovation itself
b) Structure of the work organisation
c) Employee engagement

Buurtzorg wants to both deliver better quality of services at lower costs ánd realise more challenging work for the professionals at the same time. 'The founders of Buurtzorg started from an integrated alignment to clients' needs and employees craftsmanship' (Nandram, 2015).
Its strategy is to help people to live meaningful autonomous lives, following three principles: 'humanity above bureaucracy', 'simplicity above complexity' and 'the practical above the hypothetical'.
Workplace innovation is a renewal of the structure of the work organisation and of the culture in the organisation to realise the strategic goals. So let us see what Buurtzorg has innovated in the organisational structure and culture compared to competitors in the field.

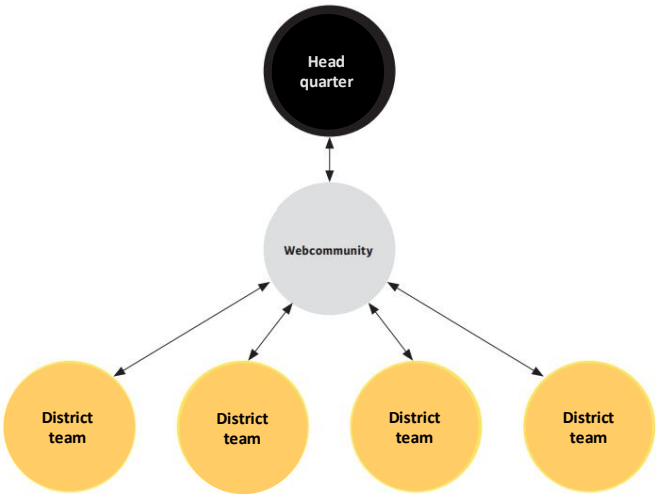
Organisational structure

As has been said above, since the last decades of the past century the organisation of care at home is characterised by a high division of labour and job differentiation: activities of different complexity levels are split up, and performed by different care-givers, nurse-assistants, nurses of different educational levels. This way of organising the process lowers labour costs because the lower educated staff is paid less. On the other hand, it makes the coordination costs very high. Moreover, this also splits up the tasks of professionals into a number of separate employees, who have low quality jobs. And from the perspective of the client the care is very fragmentated: every time someone else comes in for each treatment; the time for the treatment is very tight and meticulously planned (in minutes rather than in hours). So there is no time left for a talk, social support or receiving feedback about the delivered service. Figure 2.1 below is a model for this type of organising: Patient X is visited by Nurse A,B,C,D,E, etc. This process is aimed at resource efficiency and economy of scale. Care is organised as if it were a Tayloristic industrial factory. The organisation is complex and the jobs are simple (Christis et al., 2018; De Sitter et al., 1997).



Traditional home care bureaucracy: Resource-efficiency

Source: Christis, Achterbergh & van Laar, 2018



Neighbourhood nursing care (Buurtzorg NL): Flow-efficiency

Source: Christis, Achterbergh & van Laar, 2018

Figure 2.1. Traditional home care vs home care by Buurtzorg NL

Buurtzorg on the other hand is organised customer-based up to the lowest level. The neighbourhood teams of Buurtzorg bear integral responsibility for providing different types of care to a limited number of similar clients (being the clients living in their neighbourhood). By organising the care in this way the interdependency within the teams is high and between the teams low. That is a precondition for self-organising teams to function well. The nurses in the team provide all the care to the clients; that means that the same nurse does the simple tasks

as well as the complex tasks. There is a limited division of work. This leads to better job quality, and is one of the reasons why the quality of the care of Buurtzorg is better than its competitors. Seen from an economic perspective, one can speak of 'flow-efficiency'. The care is as simple as possible directed at the client, as 'flows' in one stream from the nurse to the client. At Buurtzorg costs savings are reached by lower costs for overhead especially because there are no managers and there is higher productivity since nurses travel much less and they can organise the tasks at the clients place the most effective and efficient way themselves.

Today Buurtzorg employs about 14.000 nurses and nurse assistants working in about 1200 neighbourhood teams. The teams take in new clients, and pay attention that team members make an average of 60% billable hours; they enter the relevant data in the system for the Headquarter to process and the nurses look after each other's wellbeing.
Thus Buurtzorg is a network of self-organising teams. The teams themselves:

- do the planning and the scheduling of work;
- are responsible for the quality;
- are responsible for 'sustainable finance';
- organise their own training and education;
- recruit new colleagues;
- give attention to colleagues;
- monitor work-private balance.

Team members typically rotate through these 'self-management or administrative activities'. But some teams that had worked together for a long time, simply kept people indefinitely in the roles that fit,however not acting as managers "That doesn't work", said an interviewed nurse (Bernstein et al., 2022).

There is a headquarter of 50 persons for financial -, client-, personnel – and productivity administration. And in between there is a web community as an IT architecture. The web community has three parts: a) financial administration, b) all tools that employees need in their work and c) communication (Christis et al., 2018). A large part of the administrative tasks that used to be executed by the nurses, is automated and incorporated in the websystem.

In sum, Buurtzorg shows a simple structure with complex jobs (De Sitter et al., 1997) (See the figure above). There is no planning department, no HR department, no marketing department, there are no managers.

Culture

The basic cultural principles for the organisation that follow from the strategy, are according to Jos de Blok (2016):

- Craftmanship and professional ethics;
- Trust;
- Room for reflection, learning, accumulation of knowledge;
- Clients first;
- Culture: just act normal;
- Learning from experience.

The director states: "It is important that these nurses feel the autonomy to do what they think is needed at the moment that problems occur, and that they also have the autonomy to share it with their colleagues" (Bernstein et al., 2022). Thus demonstrating the 'trust' in the teams of nurses. (See also: https://www.buurtzorg.com/about-us/buurtzorgmodel/).

The employee engagement is actually embedded in the whole organisational concept, structure and culture. The employees in their self-organising teams have a say about how,

when and with whom to work to the extent that they coordinate this themselves with their colleagues in their team. So they have a high degree of autonomy how to do their work, or so-called internal control capacity (De Sitter et al., 1997).
They have much external control capacity as well, since they can ask for help in the organisation when they need it, while there is no active (management) involvement from above, when not asked for.
Employees can bring in ideas and discuss plans and ideas of others by participating in discussions on the web. The employees can learn on-the- job. Their job is a 'complete' – i.e. comprising managing and operational tasks-, and challenging job; they can learn from the job, from each other in the team, and from the feedback by the clients themselves. There is a feedback and benchmark system on the web that provides figures of the performance of the teams and can help them to improve their own services and that of their teams.
The Buurtzorg community web took most administrative tasks away from the nurses.

The structure of the organisation, with its decentralised Headquarter and the web community, is actually seen by the self-managing teams as supporting and not controlling them.
The main characteristic of the organisation is 'simplicity'. 'Integrating simplification' as Nandram (2015) calls it. And it meets the design rule of De Sitter (1994) that states: 'design the organisation as simple as possible and the jobs in the organisation as complex as possible'. 'Complex jobs' imply a coherent set of preparatory, executive, supporting and organising (self-managing) tasks.
A nurse in a Buurtzorg team has preparatory tasks such as planning and scheduling together with his or her teammates. The nurses' job consists to a great extent of executive task: they deliver the services to the clients conform their professional insights. They have supporting tasks such as completing the administrative tasks via their i-pad. And they have organising tasks. They can organise their own work, have professional autonomy in their jobs and can discuss all organisational problems, ideas, proposals and innovations in their teams and via the Buurtzorg-web in the organisation.
Thus the workplace at Buurtzorg is a telling example of workplace innovation, whose core characteristic is employee involvement and engagement.

2.3 What is / are the driver(s) for WPI in this company?

a) What was the problem that required a change, that lead to a WPI-solution?

- Why do these companies voluntarily innovate their workplace in such way, that it promotes workers participation / engagement?
- Why and how do these companies value their workforce?
- Does the autonomy of employees continue to be important in corporate innovation? If so, Why and How?

Professional dissatisfaction

The problem that required a change was the professionals having the feeling of not being equipped to provide good quality of care and having lost fun at work. Jos de Blok was very dissatisfied with his job in the bureaucratic home care, after working there a few years. In the first place because he saw that the care he could deliver working at this organisation, was not satisfying the clients. All the time total strangers came in to deliver care in a 'technocratic' way. And in the second place because the work itself was fragmentated, not challenging his craftmanship. He and other nurses felt time pressure caused by the planning and scheduling from above, and having to do a lot of administrative work. And above that they had the feeling

that a lot of costs could be saved by not relying on management structures but on trusting professionals.

Client needs and employee craftmanship

The solution was: founding a new organisation. The Foundation that was initiated by these professionals was structured differently from the home care organisations that existed at that moment. Buurtzorg is built on self-organising teams delivering integral care to clients in a specific neighbourhood. Thus the professionals in cooperation with others in the neighbourhood are able to care for all needs of their clients, be it medical, practical, social or mental. This innovative way of working meets at the same time the professional ambitions or challenges for better care and provides for a good quality of work.

In the case of Buurtzorg it was not an existing company that innovated its workplaces. It was a start-up that grew fast because other teams of professionals joined the club and copied the good example. The whole concept of Buurtzorg is based on worker engagement and self-organising.

The workforce, all having a permanent contract, is valued apart from a normal salary, by giving them a maximum of professional autonomy. Furthermore they have a team of colleagues to share experiences, ask for help or support, to discuss problems and find solutions. They can ask for advic and share insights with colleagues of the other teams. And they can ask for social and practical support by coaches and specialised staff at the headquarter when needed.

2.4 What was the process of the implementation of WPI?

a) a.The role of employees: -How did the company motivate the workforce to contribute to innovation?
b) b.Management-perspective on change (centralisation / topdown – decentralisation / bottomup)

'Holistic care'

As has been stated above, Buurtzorg was started by one nurse, who set up a team together with two colleagues to deliver care in a neighbourhood. They were motivated by the challenge to create a work situation that would allow them to deliver 'holistic' care: medical, mental, practical and social, cooperating with the family and contacts of the client and with institutions in the neighbourhood.

The (fast) growth of the enterprise was more or less organic: more and more nurses formed a neighbourhood team and joined Buurtzorg. Among them there were many new colleagues of age who had once worked for the former cross union as a neighbourhood nurse and longed to work that way again.
The teams consist of 10 to 12 nurses and nurse assistants; they have no team leader and management tasks are spread out among the nurses in the team. When a team grows above 12 persons, they split up forming a new team. For 40 to 50 teams there is a regional coach, who teams can call when they need help; this regional coach has no power over the teams and has no targets. There are 20 coaches for the whole organisation.
Starting teams get a budget to hire and furnish a place that serves as their office, they take in clients themselves and decide about new team members. There are about 1000 local offices in the country at the moment.

Support structure

The support structure existing of the Headquarter and the Web community evolved according to the needs of the teams. The management perspective on change is clearly bottom up.
At the Headquarter there now are about 50 people. From the the team of two directors the founder of Buurtzorg is responsible for strategic decisions and corporate and external communication, and the managing director is responsible for the back office. The founders' task concept is to create conditions for the professionals to concentrate on their job, so to keep negative effects of insurance companies and rulings outside. The backoffice is mainly finance, processing all data from the teams regarding hours and costs etc. sending out invoices to clients and insurance companies, arranging the cash flow, and consists of a small supporting staff.
The self-developed community-web supports the teams in many ways.
Each nurse has his or her own i-pad to connect to the Buurtzorg-community-web and can spend ten minutes per client visit to put in the data. Usually they log in while sitting at a clients place; it is part of their job.

Supporting ICT

The webcommunity that was developed by Buurtzorg, is used by the nurses to put in their financial data, for the central department to arrange declarations to the health insurance companies. Also medical reports are put in the system by the nurses. The web provides formats for reports and (medical) checklists that the nurses need while doing their work.
Each team has its own domain on this web, only accessible for team members. There they can share personal and practical (like work schemes) matters about themselves or about the clients that the team serves.
At the web there is an application: Team Compass that can be used by the teams to learn about and benchmark their own performances, such as productivity, number of clients, hours, client satisfaction.
Furthermore the web is used to communicate between teams. On the web strategic plans can be discussed by all employees. When facing problems, the teams can ask the other teams for advice via the web community. Thus solutions found by other teams for similar problems can be shared.
When several teams experience the same problem, a project team can be formed. So new ideas and initiatives come bottom up out of the teams of nurses and nurse assistants. There are a few staff services centralised: mostly finance and coaches to support the teams.
This is also how most technical or digital innovations emerge from the needs of the clients and/or nurses themselves.
The headquarter and the whole structure connected by the Buurtzorg webcommunity is actually seen as supporting. One of the responders in the research by Nandram (2015) stated it as follows: *'At the Headquarters they do a lot for us so that we have enough time to focus on our clients. Working for Buurtzorg is pragmatic and gives overview. Realising that they facilitate us so much and the approachability of the founders gives me an extra drive to walk an extra mile and act with dedication.*

2.5 What are the effects and results of WPI?

a) Better products / service / performance (Effectiveness)
b) (Cost) Efficiency
c) Better quality of labour
d) Innovative capability

In the more than 15 years since Jos started his first team (2006), the concept of Buurtzorg has shown to be a success. Many new teams of nurses joint Buurtzorg and the concept is applied to deliver care to young people and psychiatric patients in the Netherlands.
In many countries the concept is presented and it is copied in some countries. There exist organisations that deliver consultancy and training as well as licences for the concept, namely: Buurtzorg International and Buurtzorg Asia. The implementation of the concept in Taiwan seems rather successful. One of the Buurtzorg's partners is STNC in South Korea. In 2013 Jos de Blok gave a presentation for the South Korean Parliament. (see: https://www.buurtzorg.com/developments-in-south-korea/).

According to Jos de Blok the concept of Buurtzorg can be successfully applied regardless of sector or culture. The context - such as a not facilitating insurance system - may be more or less supporting. However, according to De Blok, more important is an image of man, seeing and trusting them as professionals; dialogue, no top down managing and a safe working climate.

Fast growth, positive results

As stated above in 16 years Buurtzorg grew to an organisation of more than 1200 teams and 14.000 staff. Buurtzorg delivers better quality and more appreciated care at lower costs ánd offers more challenging work to the professionals than traditional home care.
In 2016 the client satisfaction score is 30% higher than Buurtzorg's competitors. There is 33% less staff absenteeism and 50% less turnover. Overhead costs are 67% lower than that of her competitors. (See picture below).

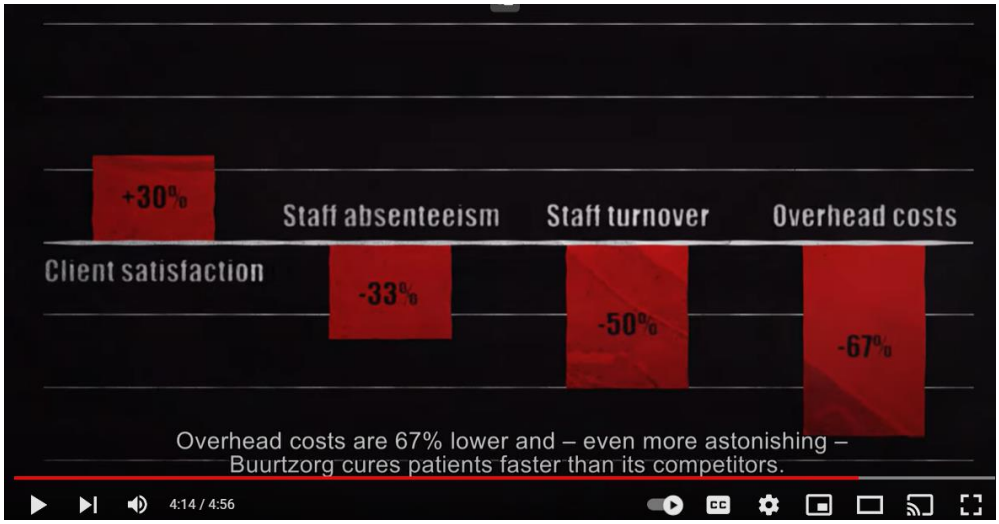


Figure 2. Benchmark of results Buurtzorg. Source: Jos de Blok 2016

At Buurtzorg workers have a complete and challenging job, they have ample professional and organisational autonomy and they have a voice in the Foundations policy. Buurtzorg has won many prices: best employer (5 times), best entrepreneur and smartest ICT solution (Christis et al., 2018). Recently (2022) Jos de Blok received the 'Social Innovation Award' of the World Economic Forum.

Innovative capability

The innovative capability is high because feedback and learning are incorporated in the innovative structure of the Foundation and in the jobs. Nurses can learn while doing their job at the clients' place, because of the completeness and complexity of their tasks and their

autonomy as well as because of the direct and contact with clients. So they can improve their operation directly while they can see what works best with the client. Nurses can learn from the direct colleagues in the their team: how to organise care, how to cooperate, how to improve effectivity and productivity. Since the teams are self-organising they are used to solve their problems and discuss better solutions among colleagues. And the Buurtzorg webcommunity provide the teams with feedback on their own operation and bench mark opportunities to learn from.
The nurses can learn from colleagues in the whole Buurtzorg organisation by exchanging questions and solutions via the Buurtzorg-web and ask coaches for help. Nurses can share the new ideas that come up while working and the solutions they have found. And they are exposed to the problems and solutions other teams report about and can discuss new ideas and approaches as well as strategic questions with all members of the company.

2.6 What is the effect of WPI on (technological) innovation and process innovation?

- What is the relationship between technological innovation and workplace innovation that can be seen in these companies?
- How does WPI influence technological innovation and innovative capability?

The whole organisational structure and culture seem to support the (new) way of delivering neighbourhood care and is improving permanently the way the work is organised and performed at Buurtzorg. It meets the needs of clients to be cared for respectfully and it provides complex, complete and challenging jobs. While at the same time costs are much lower compared to the costs of other organisations for home care.

Technical innovations

The technical innovations bundled in the webcommunity of Buurtzorg, emerged directly from the operation or the support system and the needs of the workers and or the clients. It was developed by Ecare, the IT partner of Buurtzorg This can be seen as a successful technical innovation.
This ‘emerging’ is also the way for new applications of technology such as robots, domotica, monitoring systems etc. to be ‘implemented’ or rather ‘adopted’ by whom it may help.
Nowadays the introduction of these technologies are elsewhere in the care sector very much product driven, according to Jos de Blok. That will not work, he says. For care it is important to connect with the client, to motivate them, to build a trust relationship. Technical innovations run the risk of destroying that human aspect of care.
So only if technology supports the relation and the care practice it can be of help. At Buurtzorg they did some experiments with a ‘medicine dispenser’ and with ‘video communication’. These technologies appeared to be successful only where it fits as an ordinary utility item. As soon as it is seen by the client and/or the nurse as bureaucratic or as a form of ‘control’ by external parties, it is not accepted.

3 Case 2: CTS

3.1 Description company and history

a) Goal of the company
b) Employees /staff
c) Industry
d) Context

The company CTS is a Dutch enterprise in advanced manufacturing (Oeij, Dhondt & Hulsegge, 2021). This section describes the company's main characteristics, such as its goal, products, staff, industry and context. The sources used for this chapter are public annual reporting by the company (2020), the company's public website, a research report of TNO for the Horizon2020 BEYOND4.0 project, and an additional interview with an HR manager of the company.

3.1.1 Products, mission, and values

CTS – with the pseudonym "creative producer of technological solutions" - is a privately-owned company with the ambition to be of relevance, and to contribute to 'meaningful innovation' that tackles major challenges in society, and wants to create technologies that are essential links in the systems which form the basis for the world (CTS website). CTS' mission of 'meaningful technologies' is to make technology that is accessible and affordable for clients and is produced in close partnership. CTS proposes to make smart solutions for design and production in-house and to continually expand its boundaries and innovate. Its aim to contribute to sustainability by reducing the use of energy, raw materials and plastics, and by the endeavour to continually optimising, automating and applying robotics (CTS Website).
CTS has six product groups: Embedded Computing Systems; Motion & Mechatronics; Power Conversion; Controls & Connectivity; Vision & Sensing; and Industrial Automation. They work for five types of markets: medical, semiconductor, infrastructure & energy, mobility solutions and industrial (CTS Website). CTS produces hardware and software; the hardware can be mechanic and electronic and the software supports the operation of the products. CTS further provides services and maintenance for its products.

The CTS mission is 'meaningful innovation', contributing to solving societal issues. Their technologies should not only help their clients / customers, but also contribute to reducing the global dependency on fossil fuels and to minimizing human exposure to air pollution, to global digitalisation, which lowers barriers for people in third world countries wishing to access the information and education that are essential for their welfare (Annual Report, 2020). CTS values Equality, Responsibility and Trust. It sees itself as an extremely flat organisation, consisting of self-coordinating teams, and striving to continue eliminating bureaucracy while growing. Management roles are limited and privileges for management levels are non-existing. Instead of seniority, the CTS criteria for responsibility are ability and ambition. They do not believe in tasks for juniors or junior roles (Annual Report, 2020).

3.1.2 Some company characteristics and figures

The consolidated revenue increased by 14% in 2020 compared to 2019 (€ 278 mln and € 244 mln). The net profit fell with 74% (€3,4 mln in 2020; €13 mln in 2019), the EBITDA decreased by 8% (€45 mln in 2020, € 48 mln in 2019). The productivity per FTE was 191 k euro in 2020 (-3% compared to 2019). R&D expenses increased by 17% (€57 mln in 2020). The combined

payrolls of all CTS companies listed an average of 1456 Full Time Equivalent (FTE) employees in 2020 compared to an average of 1237 during 2019 (Annual Report 2020).

Table 3.1 Background information on CTS (2021)

Dimension of local unit	DATE: October-November 2021
• Year of establishment	1993
• (Sub)sector	Advanced manufacturing
• Main product or service	A product portfolio that ranges from embedded computing, motion & mechatronics, power conversion, automation control systems, vision & image processing systems and internet of things products
• Number of employees - Total company - At location	2500 persons 1875 FTE (1456 FTE 2020); 2200 persons
• Division male /female in %	70/30 (stable over time)
• Turnover	278 million euro (2020)
• % Profit	3,4 meuro (net; 45 meuro EBITDA)(2020)
• Parent company or establishment	Parent
• Governance structure / organisational model (country, degree of autonomy)	Flat non-hierarchy; no departments; integrated projects / manufacturing
• Organisational / management philosophy	People are the most important asset; total self-control of production; technology leadership
• Financial structure / shareholders / independence	Financially independent; limited strategic loans EIB (€50 mln); not listed on stock exchange

Table 3.2 Description of the personnel situation

Dimension of local unit	CASE: CTS DATE: October/November 2021
• Number of personnel:	In 2021 the number of FTE grew to 1875 FTE in the Netherlands: 2200 persons. Worldwide, there are more than 2500 employees. In 2020, CTS counted 1456 FTE. In 2020 the Fulltime-Equivalent (FTE) employee growth amounted to 215 FTE, a net growth of 15%.
• Main categories of personnel (+ number)	Production (average level is MBO-4) R&D, sales, service (HBO/WO level)
• Educational level	30% MBO (middle VET level); 70% HBO+ (Higher VET level)/WO (university level): With an average age of 28 CTS workforce is mostly young and very well educated. 100% of personnel has advanced digital skills.
• Division core jobs / flexible jobs	2061/88 (4%) FTE in The Netherlands
• Foreign / national	50/50 division. CTS is a multicultural organisation, comprising of 59 different nationalities, coming from 38 nationalities in 2018 (Annual Report, 2020).

CTS Head Quarters is situated in the Brainport region (Eindhoven area) in the south of The Netherlands, where sales, R&D, manufacturing, supply chain and services are located. Two branches with manufacturing facilities are located in the USA (Boston) and China (Suzhou).

Sales and services are further located in Germany (Stuttgart), Japan (Tokyo) and in Israel (Ness-Ziona). R&D is only located in The Netherlands (Annual Report, 2020). This report is based on the Dutch establishment (with a staff of about 2.200).

3.2 Why is this case a good example of workplace innovation?

a) Description of the workplace innovation itself
b) Structure of the work organisation
c) Employee engagement

This section describes the workplace innovation that was implemented. We further look at the structure of the organisation and employee engagement. In the case of CTS WPI is strongly connected to the business strategy, the production system, and the management philosophy. In short, the business strategy is to grow and to make meaningful products. The production system is designed to make similar products on more places on the planet by standardising what can be standardised. The management philosophy is rooted in seeing the employees as the most important asset of the company. This stimulates decentralisation and local autonomy (flat organisation, no hierarchy). Before we can describe the WPI, we must explain this strategy, production system and the effect of the management philosophy on the employees.

3.2.1 Business model, strategy and production system

CTS wants to achieve an annual financial growth by 20% and a productivity growth of 5%. They apply three business models for these goals: Ready-to-use-Products (RTUP), Technology Solutions (TS), and Contract Manufacturing Services (CMS). CTS is shifting its focus to major customers and major products, building on extensive re-use of available building blocks and leveraging of RTUP portfolios. This should result in solutions that minimize time-to-market, risk, and costs for customers, and improvement of productivity. The objective to increase productivity is measured as annual revenue per full-time employee (FTE). Human capital is seen as the most valuable resource. Productivity is derived from continuous effort in finding an optimal balance between CTS's key output elements of Quality, Logistics, Technology, Costs and Sustainability (the last element since 2020).

The strategy of CTS is to combine 'leverage', 'integration', 'conceptual thinking', and 'global copy-exact'. CTS leverages proven technology as RTUP-building blocks. They have a shorter time-to-market and allow scalable revenues. The same idea applies to their in-house productions processes and Manufacturing Execution System. Integration is about the vertical integration of expertise and experiences and combining capabilities, that creates synergies and requires less overhead (coordination) and indirect costs. Conceptual thinking points to the CTS method of approaching challenges, excel in problem solving and maintaining simplicity. This conceptual thinking implies the break-down of functional requirements into various layers of abstraction and ensure that CTS can influence the performance of the final solution at the very root of the innovation process, where CTS "can determine the price/performance level of a product the most." (Annual Report, 2020). The idea of 'global-copy exact', the fact that CTS can expand by copying every single process, way of working and adjacent element of their model, provides similar advantages as to leverage technologies across product applications. Identical processes across the globe eliminate learning costs when setting up new subsidiaries, and it gives CTS economies of scale (for investments in machinery and other tools) and redundancy (in case of force majeure – CTS was confronted with a fire at HeadQuarters in 2018). To reach the goal of meaningful innovation scalability is a key ingredient in the business models (Annual Report, 2020). In addition, CTS' venture strategy

should support its scalability goal. In 2020 CTS took an interest in Nsure Technologies (provider of IoT solutions) and Amplye (high resolution camera's) (Annual Report, 2020).

The company strategy of CTS is to do everything 'in-house'. Its production system "Contract Manufacturing Services" is a one-stop-shop in which CTS organises all aspects with regards to NPI (new product innovation), manufacturing, test, supply chain management and life cycle management as competitive as possible. CTS has built up state-of-the-art equipment, data infrastructure and vertical integration in order to manufacture products using the latest technologies according to the most stringent quality standards to achieve the highest possible output. Their strategy to realise that, is their "global factory concepts and global copy-exact model". In other words, they copy their production system to other locations in the world in order to be able to work exactly the same everywhere. A type of standardisation that allows scaling production and high productivity and efficiency. With this model CTS can manufacture a high mix of mid- and high-tech products, systems and machines from proto and small series up to mass production (CTS Website).

CTS has three factories (Netherlands, USA, China) with a high variety of in house manufacturing processes for Electronics Manufacturing, Mechanics Manufacturing, Magnetics, Cable harnesses and Advanced System Assembly; CTS can produce all critical components for a product, system or machine. CTS uses their knowledge to improve operations. The 'Digital Factory' for example, is a digital replica of a production line. It defines work instructions, required equipment, machine files, required competences and sampling. It relies on the in-house build Manufacturing Execution System, that can design each of the steps and check if all pre-defined properties are satisfied before and during operation for each specific production and inspection step (CTS Website).

CTS has largely automated its manufacturing and logistics. **Manufacturing automation** is realised by using standardised building blocks. They developed applications to automate assembly operations (such as sealing, heat staking and automated inspection). **Logistics Automation** is achieved by developing integrated logistics solutions to provide the right things at the right time at the right place in the correct quantities. To achieve this, they use solutions such as AGVs and local buffer centers. The Logistic Management System, for example, can translate requests from external systems for goods transportation into an automated design of selected goods and routes, i.e., a schedule of operations which are dispatched to and executed by the machines, and ensuring all goods of all requests are transported in the correct order and at the right time. The figure below visualizes this process:

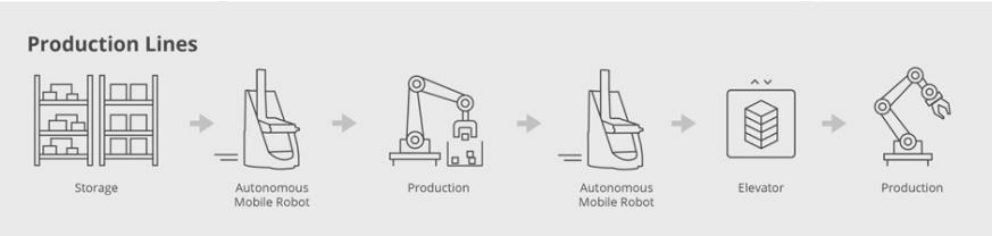


Figure 3.3 Production lines (source; CTS Website)

In addition, the **test strategy** is to realise test standardisation and automation, which results in a test platform with standardised software and hardware. All these elements are crucial for CTS' scalable factory concept (CTS Website).

In-house integrations of manufacturing services require ‘world class manufacturing‘ competences. Manufacturing competences were developed in due course as CTS became specialists in many manufacturing processes over the past decades. With their vertical integration strategy CTS did combine research, product development, process development and manufacturing to create ‘meaningful’ products, which enabled one-stop shopping for electronics, mechanics, magnetics, cable manufacturing and assembly. CTS states this “eliminates margin over margin and guarantees highest flexibility” (CTS Website), although outsourcing and sub-contracting is not the preferred working method. CTS says that they not only provide better solutions to their customers, but also better services. CTS can design complete production lines for their customers with the help of their standardized ‘building blocks’ (CTS Website).

3.2.2 *The implementation of workplace innovation: redesign of the work organisation*

We will now describe the **workplace innovation** that was implemented, which is a structural adaptation of the work organisation.

CTS seeks to secure flat non-hierarchical structures, clear responsibilities, and the possibility to facilitate the ambitions of young talents. Their organisation is, as they say, centered around the CTS-er, a talented person with an attitude that underlines the company values, who is driven by an ambition, takes initiative and is customer conscious. CTS says to strive to enable the CTS-er to perform above and beyond its potential by organising support across three axes. These axes also mark the go-to directions for promising initiatives related to technology, processes and/or teams: 1] enable Global Process Ownership (via a set of tools); 2] Program Management (to combine technology and markets with cross-functional people); 3] Cluster Coaching (personal and team development).

CTS shifted the structure from departments to an increasingly uniform structure of projects, that are connected via processes, resources, programs and customers, as visualized in the figure below.

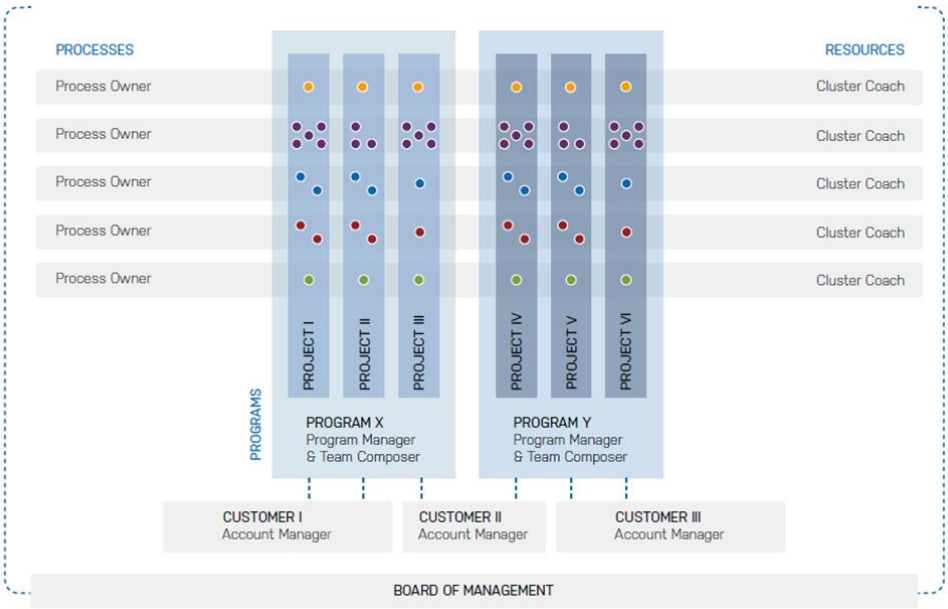


Figure 3.4 Work organisation (Source: Annual Report, 2020)

An important reason for this reorganisation was to ‘uncouple’ the dependencies between functionaries in the former situation, which lead to better allocation of people (‘resources’) to projects and created a good condition to give employees more professional autonomy. In the

former situation there was a more split up division of labour, more hierarchy, whereas today there is more focus on the process and projects.

"This [structure] requires an alignment of cluster definitions from a process and personal development perspective, and a mature process and procedure coverage for core processes as well as support functions. Furthermore, responsibility and accountability need to be clearly defined for all workflows and interactions. All products in various lifecycle stages are mapped to a program, and all development projects are structured as part of a program portfolio. Project Managers are accountable for the integrated result of Quality, Logistics, Technology, Costs and Sustainability output elements within the scope of the development phase and complete the journey from cradle to grave at the end of the product lifecycle. Program Managers oversee a diversified portfolio ranging from early research-oriented initiatives to mature products being nurtured towards phase-out. Program Managers cooperate on a daily basis with dedicated Team Composers in an effort to create the optimal allocation of cross-functional resources between short-term needs and long-term goals." (Annual Report, 2020). The members of the board are no longer having departmental responsibilities, but must more 'holistically align' growth and productivity objectives, QLTCS criteria and support CTS-ers. (Annual Report, 2020)

For the change process the management consulted the works council, who gave their approval, under the condition that employees could choose in which cluster they wanted to work.

It is good to realise that the company never used the term 'Workplace Innovation'. It is a kind of blind spot. As external researchers we observe the company's practice as workplace innovation. In discussing this point with the interviewee, it was explained that CTS sees workplace innovation as relevant, but still needs to make steps to develop it into a more conscious company policy.

3.2.3 *Strategy, structure, culture and employee engagement: why this is a good example of WPI*

The type of organisation could be labelled as a project-based matrix organisation or a team-based project-organisation. The matrix-perspective indicates that all needed expertises are connected to the projects. The team-based organisation indicates that functions and tasks are not bureaucratically split-up in adjacent work stations but allotted to a 'complete team task'. The effect is that employees in teams / projects have rich jobs with much learning opportunities ('active jobs' in terms of Karasek's Job Demand-Control model; Karasek & Theorell, 1990). This structural job design aspect enables employees to fully unfold and embrace their 'professional autonomy', which contributes to innovative solutions in the executed projects. From an organisational design perspective one can observe the following features:

- A decentralised, flat hierarchy
- The management role is to support and facilitate, not to steer; managers are 'coaches'
- High self responsibility of employees within projects / project teams
- A focus on developing solutions for customers / clients

There is a clear connection between the company's strategy, structure, culture and employee engagement (Karanika-Murray & Oeij, 2017). CTS's strategy is to grow and to apply a standardisation in production of modules. Its management philosophy shows a humanised approach as employees and their well-being are seen as highly valued. This strategy and philosophy result in a structure of the organisation and jobs that are conducive to good quality of work. At the same time it creates a culture of respect, cooperation and the willingness to

excel and coaching leadership styles. The end result is, apart from good business performance, an engaged workforce with a strong innovative capability for the company as a whole. That is why it is a good example of workplace innovation.

3.3 What is / are the driver(s) for WPI in this company?

a) What was the problem that required a change, that lead to a WPI-solution?

- Why do these companies voluntarily innovate their workplace in such way, that it promotes workers participation / engagement?
- Why and how do these companies value their workforce?
- Does the autonomy of employees continue to be important in corporate innovation? If so, Why and How?

The turn to a matrix/project based organisation makes it easier to peel off new ventures of mature products, and it helps the flexibility to allocate resources across projects.
Personnel engagement is realised in the form of brainstorming groups with regard to specific topics, like renewal or change. Employees are being consulted, but investment decisions are left to management, and experienced team leaders and technicians. CTS also has regular employee surveys to monitor opinions of its staff on all kind of work related / HR issues. The autonomy of employees is regarded as one of the four building blocks for innovation, next to the core values of equalty, trust and responsibility. This should lead to mastery, autonomy, collectivity, confidence. CTS further stimulates knowledge sharing and knowledge sharing meetings.

3.4 What was the process of the implementation of WPI?

a) The role of employees: -How did the company motivate the workforce to contribute to innovation?
b) Management-perspective on change (centralisation / topdown – decentralisation / bottomup)

The change process took place organically and pragmatically. Our interviewee explained that CTS people are mainly technicians who strive after efficient solutions, who are ‘doers’ and not per se excel in communicating. With the best intentions changes are processed, sometimes rather top down as well. Since CTS sees people as the crucial asset they understand that employees enjoy their work best when they can invent new solutions. However, because of the ongoing growth of the company it loses its character of being a start-up. “We have the joviality of the company-culture, the tools and equipment of a large multinational, and the philosophy of a start-up, and the last is disappearing” (Interview). The growth implies a shift in the composition of staff as well, namely a declining number of ‘inventors’ and a growing number of operational executers. Economically this is a good result and such a change (i.e. growing digitalisation and automation) seems hard to avoid when the company wants to grow.

3.4.1 ‘High road’ employer

Employers who (consciously or unconsciously) embrace the concept of WPI are often taking a long time perspective on strategy and change (versus a short term cost-saving strategy) and invest in innovation and a well-qualified workforce; they let employees share in the revenues

of the company by good wages and working conditions, and thus contribute to social cohesion (Dhondt, Oeij & Pot, 2021; Osterman, 2018). This resembles the 'high road' approach[1].
What are the high road elements of CTS?

Elements of the CTS HR policy

In its organisational and HR policies, some elements contribute positively to the perspective of high road employership:

- People are the most important asset
  CTS wishes to increase diversity (in terms of background, age, and gender) throughout the organisation and company board.
- High autonomy at lowest level
  What we find special about CTS is the responsibility CTS gives to all employees. A manager told us: "We have been overtaken by corona; with us you could already work from home before that. Free time, that's what Generation Z finds important. We facilitate that where ever possible. We are taking the next step in this respect. We are progressive. We organise boot camps, make the gym available to everyone, give employees lunch for free. In our employment model, everyone can become an entrepreneur, get a certificate in shares, you can grow. Are we special? Hybrid work since Corona has given us more competitors. There are people who leave us to make small webshops like Coolblue. We think our business is pretty exceptional, but we find that there are actually more 'high-road business practices' in the region" (Oeij et al, 2021).
- Flat organisation
  In other words: limited or no hierarchical levels.
- Many learning opportunities
  Cluster coaching is a type of coaching with dedicated and personal focus. It supports making role models more visible within the organization so that CTS-ers have access to these persons.
- Possibility to become employee share holder
  Some personnel can earn shares of the company. CTS stimulates internal entrepreneurship (not unhealthy competition). Becoming shareholders themselves creates more bonding among employees; in theory, everyone can become an entrepreneur based on the idea of equality, then you become a 'caretaker', but in practice, only the core employees are eligible for shares (about 16%).
  CTS is, however, not a member of a collective labour agreement, which might be contrary to a 'high road' perspective. CTS has their own employment conditions scheme, agreed with their works council.
- Mission to contribute to 'meaningful innovation'

[1] What is 'high road'? Companies can follow different approaches to motivate and engage their employees. If companies are focused on building on the motivation and engagement of their employees, we call this a high-road strategy. If the strategy is more on keeping a limited connection and engagement of employees, then we call this a low road strategy. We want to understand which reasons companies may have to follow either of strategies. Characteristic for a low road strategy is a focus on cost efficiency and short term economic goals. More often such companies have centralised governance structure, strongly depend on externalities and employ a relatively large flexible labour force with limited investment in personnel in terms of training, renumeration and job quality. A high road strategy is the opposite: a focus on longer term goals and innovation for the future, less centralisation, more proactive responsiveness how to deal with externalities and a workforce that is deployed in a sustainable way of which the company accepts it is more dependent on for its own success. Of course, these dimensional opposites are simplified and extreme, but nonetheless helpful to understand in which direction companies are choosing their strategies. In other words, a high road strategy resembles the concept of WPI.

- The sustainability strategy is also supportive for employee well-being
  The sustainability strategy is underpinned by five pillars of sustainability: People, Responsible Innovation & Design, Good Business, Sustainable Operations and Circularity. It should also help achieve UN Sustainable Development Goals. CTS states: "By 2030, 90% of our employees will rate their workplace as healthy, supporting their well-being and development, and contribute to the common good for all." (Oeij et al., 2021). As the people are the biggest asset and the driving force behind the company, CTS intends to provide excellent working conditions and a safe, inclusive, healthy and open work environment. To support employees, CTS intends to provide training and facilitate personal development by encouraging them to take a high degree of freedom and independence in their work.
- CTS has a sympathetic stance towards inclusiveness
  A manager told us: "The founders of CTS had a great weakness for disabled employees and always had the philosophy of helping people; e.g. provide financial help to buy a house, thinking along about people with a 'back pocket', e.g. enabling girls with autism to work well. They found it important that there was a safe place for everyone; but with us the work pace is high. That does select certain people" (Oeij et al., 2021).

3.5 What are the effects and results of WPI?

a) Better products / service / performance (Effectiveness)
b) (Cost) Efficiency
c) Better quality of labour
d) Innovative capability

The main result of the organisational change (workplace innovation) is the enhancement of the process efficiency (not per se cost efficiency). The new situation made it more flexible to deploy persons according to their expertise (competences) across projects. Eventually this had positive effects on product quality and performance, quality of work and innovative capability.

3.6 What is the effect of WPI on (technological) innovation and process innovation?

› What is the relationship between technological innovation and workplace innovation that can be seen in these companies?
› How does WPI influence technological innovation and innovative capability?

According to CTS there is no clear direct link between technological and workplace innovation in their company. As said, the new organisational structure will have an indirect effect on innovation, but it is hard to measure that.

3.6.1 Innovation strategy

CTS has the strategy to leverage their technologies in multiple markets, resulting in proven solutions that minimize time-to-market, risks and costs for our customers for several product-market combinations (see Figure).

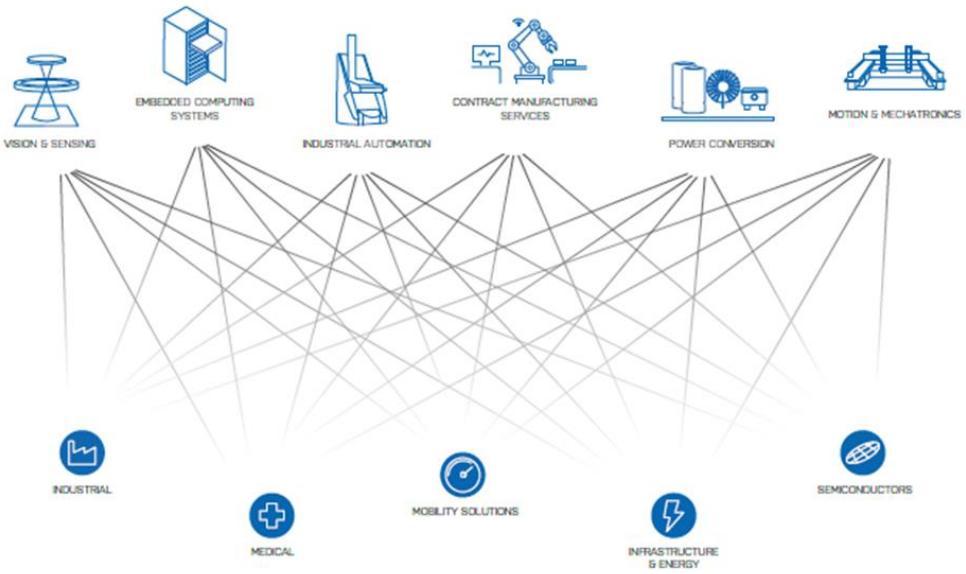


Figure 3.5 Products and markets (Source: Annual Report 2020)

CTS is lifting on the waves of three trends: 1] the ever-increasing demand for computer chips; 2] the global energy transition; 3] the need for advanced and affordable healthcare. CTS wants to move towards off-the-shelf-products (ready-to-use-products, components, modules or subsystems), to get a bigger return from their R&D investments. Further, CTS aims to market Original Equipment Manufacturer (OEM) applications across programs and independently serve end-markets through global sales and service channels (e.g., their industrial automation solutions, primarily developed for own use, are seen as having great potential to serve the market as an OEM solution). The picture below illustrates the business strategy for the above mentioned product-market combinations (program-market combinations):

Figure 3.6 Growth potential and market share (Source: Annual report, 2020)

The large number of CTS products can be reduced to six product groups mentioned above. In addition to products, CTS supplies extra (production) capacity (contract management). Since

1993, CTS has grown by an average of 20-25% in turnover and staff. The perspective for the coming years is even stronger growth than 20-25% per year. The reason for this is that strong growth is expected for CTS's products: partly due to the switch from fossil fuels to new energy sources, there will be growth for CTS's electronics products; growth is also expected in health care. The growth is mainly in 'products' and less in 'contract manufacturing': the added value of the products is greater and allows for more standardised production. Ultimately, CTS can grow by several thousand employees. (Oeij et al., 2021).

R&D and investment strategy

CTS invests very heavily in R&D. About 20% of turnover consists of R&D costs. The strategy is to move more towards products and thus reduce R&D costs. 40-50% Of the staff work in R&D positions. CTS also invests in more fundamental technology, such as: optics (a new branch of sport); sensors; supply to Thermo Fisher.

CTS is fully responsible for its own R&D. Innovation is kept in-house. There is always a discussion in the company about what the core competences are. Examples of new developments:

- A new (robotised) warehouse has been built, with savings for environment (It is a full lights-out warehouse).
- Sensors for the car industry: 35 production steps are needed for this. CTS has its own 'production design' strategy.

CTS is audited a lot and many companies ask for the production strategy to be 'sold' to them (e.g. project management, resource management, ...). CTS is very much self-made, in both its products as its production processes. The type of products that CTS buys in are limited, such as standard ICT systems for standard processes (like SAP). Otherwise, CTS has the philosophy to make and design as much as possible by itself. A manager explained to us: “There are many interfaces in the systems. The integration of systems is central. Data is needed to make everything fit together. The essence is that it is precisely in this integration that it is important for CTS to do as much as possible itself. CTS wants to know, down to the smallest detail, how things work and what is required to do them. Only then can they better understand how things can be improved, and gain a better insight into the margins they can make with a technology” (Oeij et al., 2021).

CTS has the lead in (its own) technology development. It is an engineering company with transparency as its basic philosophy. The culture is one in which everything is documented, reviewed and life-cycle management is done systematically. Most products have a long life cycle and this requires a great deal of thought about what is needed to maintain a product. CTS also links competence management to this development strategy. The main aim is to bring together and share as much knowledge as possible on the shop floor (Oeij et al., 2021). Once such processes and products are well designed CTS looks for possibilities to copy products into other products and processes into other production facilities.

Impact on the production process / company strategy

CTS is a digital leader. It uses digital capabilities (big data, automation, IoT and cloud computing) to improve customer experience, outdo competition and create new business models, adapted to the current competitive environments. CTS is known for its strive to maximise the automation of its production processes. Above the ‘digital factory’ already was mentioned. In 2020, the roll out of the use of own AGVs in several critical production centers is realised to enable a 24/7 production scheme and to eliminate the transport of goods by technicians in the factory of CTS. Next to that, CTS is optimising platforms for automating manufacturing process steps. Automated steps include processes like dispensing, heat staking, laser marking, plasma cleaning, visual inspection and ultraviolet (UV) curing. These processes are generically applicable to the product portfolio. To further optimize the ‘digital

backbone' there are various software projects for Automated Planning Software, Centralized File Storage and a Logistics Execution System. On top of these software applications CTS created a holistic performance dashboard to analyse and improve (production) processes (Annual Report, 2020).

Strategy of dealing with the digital transformation

CTS works with all the new technology that is available. To a large extent, they are steering their own technological revolution and are not dependent on other suppliers. Even on the domain of software, CTS finds its own developments.

"Software is the biggest and fastest growing cluster in our development process", says the Annual Report (2020). The software development of CTS ranges from the lowest level code in FPGA's and microcontrollers, operating systems, board support packages to application software in products, systems and cloud solutions. About half the software ends up in customer products, the other half is used in own automation solutions and business processes. In 2020, CTS started using a low-code platform for user applications and apps. Another trend is the use of artificial intelligence (AI) and machine learning. Inspection setups can now replace manual optical inspection for complex assemblies. CTS expects AI to grow fast in manufacturing (Annual Report, 2020).

3.6.2 The human factor: impact of digitalization on work and employment and skills

At CTS, further investment in technology does not lead to job losses at all. New jobs are created all the time. (Oeij et al., 2021)

Attrition. CTS recruits many young people directly from education. The company experiences minimal attrition; the image is that employees stay with the company. However, the influx of young people is so large that the average age hardly rises at all: staff turnover is lower than the number of new recruits. The average age is 29.

Contracts. Within the organization, staff growth is more or less the same everywhere. People get fixed contracts. A manager informed us: "We only work with flex contracts as a recruitment channel, in operations. If they are good, we take them on. We hardly have any freelancers. We recruit via Direct People, Wiertz, APS Personnel Service, and Synergy. The janitor is also permanently employed, because we don't want to be without people when we want to deploy them. We have also expanded our Real Estate, there is a maintenance and construction company, because we build a lot. Our strategy is to have the necessary competences in-house quickly. We want that for every process we have a process owner. We do that with our assessment methods: employees share all the knowledge they consider relevant at the outset. Like the Competence Matrix, you can quickly find out people's expertise, even that which is in addition to their education, if you know what their hobbies are. Someone who knew a lot about photography now helps to photograph products. You can easily shift when you know what people can do" (Oeij et al., 2021).

Jobs and job content. Technology is mainly 'augmenting' what employees can do, and not just eliminating tasks. New technology leads to new possibilities with which more can be done. The example is Low Code Software. Instead of an employee coding a lot of lines, a programmer can focus on the intellectual challenge of combining software blocks (modular chunks). The growth of jobs is in all types of technical work:

- production: producing parts; assembly work;
- software development: embedded; application; AI & Data;
- electronics development;
- mechanics development.

Impact on skills and competencies

In production, the development axis is the T-axis: the core is the technical competence, above that come the system functions. Employees need to go through this development. Also with the possibility of growth to supply chain management.
The required educational level for production and assembly is mainly MBO (middle VET level), while for software, electronics and mechatronics 'endless talent' is being hired (HBO or university). In software, there is a shift from embedded and applications to more AI and data science. A manager said: *"We are our own application developer, which is growing slightly, but we buy in standard software for general processes, SAP, for example"* (Oeij et al., 2021).
CTS technicians are regarded the most valuable asset within product manufacturing, for which CTS has a focus on competence management. This has the purpose to increase the added value of technicians by broadening their employability. Technicians are deployed in multiple departments to share their knowledge and best practices. This makes CTS more agile and flexible towards potential peak loads (Annual Report, 2020).

CTS highly values 'conceptual thinking' as a competence. "We are known for our young and bright designers and engineers that look at things from a different angle. They come up with ideas to solve complex problems with less parts, simpler and more robust structures and better maintainability. Gaining on cost, quality and functionality is often the result of the fundamental choices that are made in the design of a product, module or system", according to the Annual Report (2020).

Another element of CM is the multidisciplinary approach to break down boundaries between different technology disciplines and continuously explore new ones. Interface between mechanics, electronics, electromagnetics, software, optics can be challenged to see if a better solution is possible. Through the years this has improved 'system development skills and expertise' (e.g., the QMS system, 'requirements management'). Design competences are another important element for electronics (e.g., processors, power, miniaturisation, hybrid modules) (Annual Report, 2020).

As said above, it is not expected that digitisation will eliminate jobs. On the contrary, it will offer new opportunities for new jobs. Entrepreneurship is an important skill for CTS. The company also encourages this in students. Student teams are challenged to solve technological problems for CTS. CTS strongly believes that employees should be given room to make their own contribution. CTS sees that in the long term technical skills will still be of central importance. A shift towards soft skills seems unlikely. A manager explained this to us: "We still want to give people who are less good at communication the stage to excel; soft skills are actually less relevant here than at other companies. Customer contacts require soft skills, but within the organisation it is all about technical challenges. If you have to make a selection between candidate 1 and 2, we have them take an external test. When recruiting, we ask them what they are good at, let them make a software test in their own programming language, it's easier to talk about that, better communication about that. You have to be able to talk about your discipline with other competence owners. Professional communication is very important" (Oeij et al., 2021).

The staffing is derived from the business strategy. This strategy is characterised by an autonomous organisation, i.e., there is a lot of responsibility at low levels in the organization (job autonomy), as there are few layers, and while there is much self-management. From the business perspective CTS is now paying more attention to off-the-shelf products. This requires more people to put everything together, with interdisciplinary skills. Because of the labour market shortage of MBO-4 personnel, there is a struggle between more hands or more

industrial automation. CTS says it aims for the latter, but the complexity also requires a lot of people. A manager explains: “We are more concerned with augmenting technology than with substituting people by automation. There is a scarcity of manual skills in occupations at MBO level. There is a lot of competition. Finding specialists is difficult; you see that the MBO level is undervalued compared to management ambitions. Graduates, also from MBO, all want to be managers in five years' time. And MBO graduates think they can become project managers, as is evident from their application behaviour.” (Oeij et al., 2021). MBO education in Brainport (Eindhoven area) should offer a more realistic perspective of what working in top companies is like from the perspective of the study program, states the company.

CTS works with three grades of competences: novice, skilled and expert. In addition, there are two roles: engineer (starter), reviewer (experienced person who assesses/coaches others).
The matrix goes per process and works for the entire organisation, for each level. New profiles are created from each competency set (makes it easy to see where development is for mobility to adjacent functions). The competence set shows whether someone fits in with the work of clients, such as ASML or Philips [Int. CTS-2].

Recruitment, training and growth strategy

To deal with the strong growth of services and products, CTS has a personnel growth strategy of 20-25% per year and strong training strategy.
CTS has a specific recruitment strategy. For groups that are least available (especially software engineers) they recruit at good/reputable universities where not everyone goes recruiting, like in Iceland or in Sofia. Software experts in Sofia earn as much in Netherlands but can do much more with their money there, because of the lower living costs. CTS rather fly in those specialists than build that knowledge by themselves.
For recruitment it explains why they are looking for international cooperation (Universities in Iceland and Sofia), and looking for strategic places of regional headquarters. The HR-manager explains: “We have a model of our growth, how we want to achieve it, turnover, productivity, what competencies are needed? We can calculate these needs precisely and then recruit accordingly. This system works well, because there is little deviation: based on our calculation in the middle of 2020, in 2021 we are only 14 people short of what we thought we needed. That shows how good our calculation model is for our staffing requirements” (Oeij et al., 2021).
CTS offers new staff entrepreneurship and shares. For example, someone wanted to develop something with engines, so CTS makes facilities available in the production line. Eventually that lead to a product generating millions of turnover. CTS also invests a lot in student teams. The HR Manager: “We offer the opportunity for knowledge instead of euros. We do the same with local entrepreneurs, who can use our facilities. There are also start-ups, and we help them, with an engineer of our own, which is also intended to recruit and bind more people” (Oeij et al., 2021).

CTS wants its personnel to keep developing themselves and support personnel obtaining new diplomas. The HR Manager: “It is a lucrative system for employees. We encourage people to study, we pay for the training for about 50 people a year; also leads to 60-80 trainees a year, those are significant numbers” (Oeij et al., 2021). Most of them are academics.

For CTS it is important that employees keep their competencies up to standard. Every process is a defined workflow. People have to keep their competencies up to date, and make sure they receive sufficient training. CTS uses a Resource and Responsibility Matrix. This provides a 'Living CV' of someone, which provides information about what a person controls, what ambitions a person has, so they know what they want to develop, and in what topics they can train themselves. CTS let new employees start from her / his own talent so that she / he can

grow into specific processes and workflows. The idea is that the employee gets involved in specific (technology/product) programs and can apply the competencies. ‘Coaches’ ensure that employees develop their competencies in both directions. “We have a working culture in which people can find each other easily, an open-door culture. People are trained by guidance, we are facilitators, give people a stage. Everyone has the opportunity for a personal ‘cluster coach’, who is not a typical manager, more of a cooperative foreman, key person in your own discipline, as a kind of mentor”, explained the HR Manager (Oeij et al., 2021).

The reason why CTS is doing this has to do with the demands of technology. CTS has a growth strategy aimed at juniors, who have a fresh view from their education. Instead of emphasizing seniority to coach juniors, CTS does it the other way round, the juniors have to push the seniors. “This works well, the seniors are pushed forward to cope with innovation. In this way, we lay the responsibility low in the organization” , says the HR Manager (Oeij et al., 2021).
Despite the growth strategy and partly due to the tight labour market, there is a structural shortage of personnel, the workload is considerably stretched: there is a heavy workload due to this under-capacity.

4 The practice of WPI in the Netherlands

4.1 General overview

4.1.1 Terminology

In the Netherlands we use the term ‘workplace innovation’ when we communicate or write about the subject in English. In Dutch commonly the term ‘sociale innovatie’ (social innovation) is used to refer to: the non-technological aspects of innovation, namely innovation of the work organisation, the labour relations, workplaces and jobs. This term ‘social innovation’ would express the idea that these non-technical forms of innovation could improve organisational performance and the quality of work on its own ánd that they form a necessary complement of technical innovation to be successful (Pot & Vaas, 2008; Van Hootegem et al., 2008).
In 2011 the European Union published the document ‘Social Innovation Europe’ with the intention to start a policy-program to overcome problems in the society, that are not automatically solved by the free market. So the EU introduced or adopted a much broader meaning of ‘social innovation’. To avoid misunderstandings The Netherlands (and in Belgium, Flandres) took over the term ‘Workplace Innovation’ for innovations within and between labour organisations, from the national debates and programs in Finland, UK, Ireland and Germany (Pot, 2012).

4.1.2 Debate and development in the seventies, eighties and nineties

Since the seventies of the past century discussions came up from diverse parties and angles that shaped the rise of workplace innovation (Oeij, et al., 2021).
Already in the seventies the German trade union, supported by some universities, started the discussion about the quality of work: ‘Humanisierung der Arbeit’ (humanisation of work). The background was a fast growing economy, mechanisation and automation and an increasingly skilled workforce. Work should meet human standards, like safety, health and wellbeing. In this German debate soon the relationship was established between the quality of work and the design of work organisation and the application of (new) technology: ‘Menschengerechte Arbeitsgestaltung’ (human-centred work design). These views and debates were taken over by the Dutch trade union and several scientists in the eighties. The discussion developed from: ‘how to cope with the consequences of automation’ (Vaas, 1981) to ‘how to influence the design of labour processes and technology in such a way that it meets production needs ánd demands on the quality of labour’ (Christis, 1988).

This debate had some resonance in government policy. First of all there was a renewal and broadening of legislation in the field of safety at work in the form of a law on working conditions (‘Arbowet’). Not only safety at work was now regulated, but also: health and wellbeing. Moreover firms were obligated to carry out a workplace ‘risk inventory’ and to implement a more structural or sustainable working conditions policy. The implementation of this law took almost a decade.

In the nineties two employers-associations introduced a program to realise more participation and co-determination in the management style of their members: ‘Anders werken’ (Working differently; NCW) and ‘Management en Arbeid Nieuwe Stijl, MANS, (Management and Labour in a New Style, FME) (Pot, 2012).

4.1.3 Rise and fade away of public policy on Workplace Innovation

In the beginning of the new century four trends or insights were leading to a ‘break through’ of workplace innovation in the Netherlands (Pot & Vaas, 2008):

1. A lagging productivity growth, compared to other developed countries ánd high workload in jobs leading to the notion ‘don’t work harder but smarter’ (Vaas, 2001).
2. The need to develop and utilise the skills, talents and competences of the workforce to increase the added value, especially in the light of an ageing and hazing population as well as globalisation.
3. The Lisbon Agenda of the European Commission for 2010 (drawn up in 2000) to make Europe the most competitive and the most dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.
4. Research showed that companies and public organisations can only fully benefit from technological innovation if technological innovation is embedded in social innovation (Volberda, et al., 2005).

In 2003 social partners such as AWVN (an employers association) and the trade unions from the industrial and commercial services sector started a ‘Platform Smart work’ (Platform Slimmer Werken) that was supported by Erasmus University Rotterdam, AIAS Amsterdam University and TNO (Netherlands Organisation for Applied Scientific Research).
On the national level, also in 2003, the ‘Innovation Platform’ (Innovatie Platform) was established by the Dutch government to meet the EU Lisbon agenda. The platform was composed of renowned representatives of the Dutch knowledge economy and chaired by the Dutch Prime Minister. In the beginning this platform was very much oriented at promoting technological innovation. But scientists of research institutions, such as Erasmus University and TNO, argued that technological innovation will not work optimal without workplace innovation (sociale innovatie, social innovation).
In this climate, strongly promoted by the Innovation Platform and the Platform Smart Work, a new Institute was founded in 2006: NCSI, Nederlands Centrum voor Sociale Innovatie (Dutch Centre for Social Innovation / Workplace Innovation) (Volberda et al., 2005). The Centre was subsidized by three Dutch ministries (Economic Affairs, Social Affairs, and Education) for a period of six years. And it raised additional funds by offering a paid membership to companies. Furthermore, the involved parties, social partners, universities and TNO provided (unpaid) manpower to carry out the work.
NCSI saw as its reason of existence to spread the knowledge about workplace innovation and good practices of among workers and companies (from small to large), to build networks of public and private organisations and knowledge institutions, and to stimulate actions and experiments within and between organisations in various industrial and non-commercial sectors.
The funds for NCSI to operate were limited and temporary. In the beginning of 2012 the three ministries stopped with providing subsidies. Then the founding parties and the NCSI staff decided to close the Centre because the main purpose of its existence was met: ‘workplace innovation’ was put on the national agenda and in many public and private companies and intermediate institutions the seed was planted. (Xavier & Pot, 2012).

During the NCSI-period and beyond an EU program started: the *“European Social Fund (ESF): Action E (2007 – 2013) for Social innovation and Sustainable Employability”*. It offered subsidy to employers of public and private companies who want to (re-)organise their work processes and working conditions in a smart way to become more efficient and for the employees to stay employable. Sustainable employability had become more and more important since the retirement age was raised from 65 to 67 in 2009. This fund facilitated many organisations to hire an intermediary or a consultant who applied the new gained insights about workplace innovation. While ESF funding had similar objectives in other EU Member States, the

application in The Netherlands and Belgium (Flanders) came closest to the concept of workplace innovation initiatives.
Also in the frame of the EU, EUWIN (European Workplace Innovation Network) was funded by the European Commission in 2013: it was a network of Institutes in the field of Work and Organisation from diverse European countries. The aim of EUWIN is to promote the concept of workplace innovation throughout Europe as a way of enhancing capacity for product-, service- and process innovation, increasing business competitiveness and creating better working lives for EU citizens. EUWIN organises conferences and workshops and provides a knowledge bank with inspiring cases and experiments, articles and evidence. However, EC funding ran out at the end of 2017. EUWIN continued as an active network, supporting activities in several countries and promoting the further development of workplace innovation in European policy framework. (EUWIN - Workplace Innovation). The Netherlands participate in this network via TNO.

Summarising, after 2012 there was only limited EU-support and funding of activities to promote workplace innovation in The Netherlands. And there was no direct national funding anymore, as this did not align very well with the neo-liberal climate that dominated policy making at the time. The neo-liberal ideology still is that the market should do its work in the first place and that the design of work organisations and the management style are a prerogative of the shareholders and the management. The market nor the management policy should be disturbed by governments interventions, according to the dominant political and economic views. Therefor the funding for experiments with workplace innovation practices in organisations was not continued.
There was, however, a form of industrial policy in a light version, that supports 'top sectors' in the economy by facilitating a knowledge infrastructure per sector. These sectors are seen as leading the Dutch economy. The Netherlands' innovative top sectors are seen as among the world's best, according to the government. The government wants to further strengthen their international position. The Netherlands government designated nine top sectors: Horticulture and propagation materials, Agri-food, Water, Life sciences and health, Chemicals, High Tech and New Materials, Energy, Logistics and Creative industries. Some of these top sectors developed a 'human capital agenda'. In this context, research is being done into workplace innovation-related topics. Also some sectors have established (regional) knowledge and information centers or bring companies together in learning networks. Since the frame is mostly the human capital, the activities mainly concern the development of skills and training. The redesign of work, the organisation and management – important 'structural' aspects of workplace innovation (Oeij & Dhondt, 2017) - is discussed much less often, let alone applied.

4.2 Evidence from research

In the first fifteen years of the century limited systematic research was done on the outcomes of workplace innovation practices in the Netherlands. The Erasmus 'Concurrentie en Innovatie Monitor' (*Competition and Innovation Monitor*), for example, was executed several times between 2006 and 2014. The focus in this monitor was on the innovation process in companies. And an important and returning result was: 'Technological Innovation explains 21 – 41 percent of innovation success, while 'Social Innovation' (*Workplace innovation*) explains 59-79 percent of innovation success.' (Volberda et al., 2010, Volberda and Heij, 2020). In this research 'social innovation' is operationalised as non-technological measures: innovative (flexible) organisational forms, dynamic management, high quality employment relationships, and co-creation with external organisations and universities.

Another example is research done with the National Employer Survey (Dutch abbreviation: WEA) in the first decade (2008 and 2010). This research concluded that approximately 10% of all private and public organisations had implemented workplace innovation practices. Here too the hypothesis was confirmed that there is a positive relation between workplace innovation and improvement of the performance of the organisation, in terms of profits and lower costs, strategic- and product-market innovation and flexibility (Oeij, et al., 2010; 2011 and. 2012)[2].
Commissioned by the Innovation Platform, other research was conducted into the effects of workplace innovation in SMEs. (Hauw et al., 2009). The conclusion was that workplace innovation correlated positively with business performance ánd increased employment in SME's.
Research was carried out on the results of the Dutch projects subsidised by the European Social Fund (ESF), which was mentioned above (Bureau Bartels, 2011). This and other studies (Pot, 2011; Pot et al., 2020) supported the previous findings on the positive relationship of workplace innovation practices with company performance but also showed a positive correlation with aspects of quality of work. The evaluation study found more complexity in jobs, a better image of the company in the eyes of its employees, and a better use of skills and competences of the workers.
Later research – limited to the logistics and transport industry only - seemed to show that the percentage (10%) of organisations practicing workplace innovation was rather stable; it had certainly not increased (Putnik et al., 2019).
In 2019 the 'Competition and innovation Monitor' was executed once more, under the name: 'Nederlandse Innovatie Monitor' (Dutch Innovation Monitor) by another research institution in Amsterdam, but with the participation of the original researchers. The main topic was innovation capabilities of Dutch companies and organisations. The researchers concluded that 'companies assess investments in social innovations as more important than investments in technology' (De Jong et al., 2019).

Probably related to the decreasing government support for workplace innovation in The Netherlands, not much systematic research was done in recent years.
European studies – of which the main part also is executed in the first decade of this century - supported the conclusions that we reported. For example Ramstad (2009) reported that "Research indicates that through workplace innovation a simultaneous improvement in quality of working life and productivity is possible, in particular in projects with strong employee participation". Totterdill and Dhondt. (2013) concluded that "there is a case for workplace innovation". Dhondt et al., (2017) stated that workplace innovation obviously "benefits for employee and employers".

In sum, only limited scientific research covering all sectors in the Netherlands has been done on the occurrence of workplace innovation practices, the drivers, results and outcomes. We assume cautiously that the occurrence of workplace innovation is still around 10%. Thus there is much to win for the Dutch economy, since the presented research also shows that where workplace innovation was applied as an improvement of the work organisation, the labour relations and the external relations, or as complement of technological innovation, results were positive both for the performance of the organisation and for the quality of work.

Next to this quantitative research, we now look at what we can learn from case studies of best practices of workplace innovation interventions in organisations in The Netherlands. We will

[2] Measured in another way, the level of workplace innovation in the Netherlands, is in an European study 6% (Eurofound, & Cedefop. 2020).

describe and evaluate these qualitative cases below, based on a qualitative quick scan of circa one hundred cases which are collected in a knowledge bank on workplace innovation.

4.3 Drivers of WPI for private and public organisations

Although the stimulating government policy and subsidies were temporary, not excessive and practically stopped after 2012, a reasonable number of Dutch public and private organisations have applied workplace innovation, also in recent years (above estimated at approximately10%).
What made these companies and public organisations do this and what still drives them, in recent years?
For this report a 'qualitative quick scan' is done on the more than hundred Dutch cases collected (since 2012) in the Knowledge Bank Social Innovation (www.kennisbanksocialeinnovatie.nl and www.workplaceinnovation.org)[3]. We made an inventory of the drivers and the results of these organisations, as far as the case descriptions allowed us to.

If you take note of the main drivers we found (the most frequently mentioned first) and listed below, it is good to realise that usually more than one driver or motive is present; sometimes different motives play a role in different groups in the organisation. Also goals can be means of workplace innovation at the same time; for instance 'improving innovative capability' is a mean to improve (economic) performance.

4.3.1 Improving customer or client demand

In many cases in one way or another the improvement of the customer or client demand is an important driver. This makes sense as it is the raison d'être for public organisations and for private organisation it is how they can make profit. However, it appeared that many organisations have become so complex by a far going division of labour that customer/client demands have become far beyond the sight of many employees and even many managers.
This driver of customer / client demand dominates WPI in many cases in the care-sector. As has been explained in this report before, Buurtzorg Nederland was started precisely because the home-care was so fragmented and bureaucratic that the care was not to the satisfaction of the clients nor of the professional nurses. Many of the cases in the care-sector we found, have client demands as a driver or even followed the example of Buurtzorg.
More or less the same applies to municipalities and other public services and schools. In these cases organisations try to bring workers in contact with citizens, local residents or (representatives of) students / pupils in order to get to know the demands of these clients. The city of Breda for example (in the south of The Netherlands) stimulated and facilitated employees to start experiments in collaborative projects with citizens, for example to improve facilities in a residential area in cocreation with them.
But also in many private companies client/customer demand plays an important role. They restructured their organisations in such a way that they can deliver more reliably, faster, better and with fewer errors than they did before and better than the competition. We found a good example of this strategy in the industrial manufacturer Bosch Scharnieren, implementing Quick Response Manufacturing (QRM): convert your company into a flexible network of super-responsive mini-companies, each of which make (sub) products for one specific market sector.

[3] We used the Dutch cases in www.kennisbanksocialeinnovatie.nl; many but not all cases have an English translation in www.workplaceinnovation.org; the cases in this text do have an English translation.

In yet another way this driver also occurs at Embrace, an IT-consulting company, who developed new businesses in cocreation with a client, using social media.

4.3.2 *Improving profit, returns and growth*

Many cases in the profit sector that are described in the Knowledge Bank (also) want to improve profit and economic growth by implementing workplace innovation. They want to transfer their processes in such a way that they are more efficient, have a higher productivity, lower costs, less repair costs etc. We see this driver in organisations in the manufacturing and food industry, in logistics and commercial services. Examples of this strategy in the knowledge bank are BK Bodem, an engineering company and Jac Barendregt, a construction company. But productivity growth, lower costs and less errors are often also motives in the care sector and within municipalities.

4.3.3 *Improving innovative capabilities*

For several cases in the knowledge bank the driver seemed: improving innovative capabilities. It has many appearances in the reports: adaptive capabilities, pro-activity, flexibility and flexible deploy ability, continuous improvement, resilience, adoption of innovation. The desired outcome here is that the organisation will be able to keep pace with the increasingly rapid changes in the market and customer demand, partly as result of globalisation. This driver leads to various interventions, ranging from introduction of Kaizen, stimulating workers to think of improvement of work processes (case: Nissan Motor Parts, Amsterdam) and idea management (for example: Resato, machine industry), to the creation of learning and development opportunities (cases in the care for disabled), providing room for experimentation and a management style based on trust, and allowing to make mistakes (Movares, DSM Anti-infectives, the latter is now: Centrient Pharmaceutics).

4.3.4 *Stimulating innovative behaviour and 'intrapreneurship'*

This driver is a derivative of the afore mentioned, and is increasing in popularity in both private and public organisations. The idea is that workers should be offered the opportunity to take initiatives and be facilitated to work them out. After all, employees are often in close contact with (internal) customers or clients and can see best where opportunities for new business lie. Examples in the knowledge bank are: Full Management support an accounting firm, Van Dorp a technical installation company.

4.3.5 *Remain or become an attractive employer*

From a different angle comes another driver for workplace innovation, namely to remain or become an attractive employer. This is more and more compelling now that the labour market is tightening. An innovative climate in an organisation requires motivated, engaged and experienced workers who know the organisation, the business and the customers. As an employer you do not want to lose such employees and you want them to use their competencies and to be able to deliver as long as possible. Employers do not want them to lose interest or become ill. Furthermore employers want to attract young talent. So a driver for workplace innovation is to improve the quality of work, and provide challenging jobs and career opportunities. Examples of these cases are to be found in logistics (KLG Europe), manufacturing industry (Heurkens & v.Veluw), and care (Van Neynselgroep).

4.4 Evidence from the cases

Is there any evidence that these drivers for workplace innovation lead to the desired outcomes?

Most case descriptions in the knowledge bank present ‘results’ as seen by the stakeholders who were interviewed by the reporter of the case. Here again we present the most frequently mentioned results first, but the first three below were reported about equally often: growth, quality of work, and quality of products / service.

4.4.1 Growth

In many cases a realised ‘growth’ was the first result mentioned. That is growth in terms of turnover, productivity, profit ánd in staff. Some also reported a growth in the order book. And also the growth to a higher market segment was mentioned. Growth was also facilitated by cost reduction, as many organisations mentioned. Especially by reduction of overhead costs since less coordinating and management tasks had to be fulfilled where workers are able to work more independently and teams are self-managing and where bureaucracy has been pushed back. Also a reduction in absenteeism was reported and thus a reduction of costs associated with this.

4.4.2 Improved quality of work

Many cases show an increase in job satisfaction, happiness at work and that workers experience more challenge. That is the subjective side of quality of work. But some also reported that workers actually have more variety, complexity, autonomy, room to manoeuvre in their jobs. They have more learning and development opportunities after the workplace innovation interventions. In several cases it was reported that workers show and take more responsibility.

In some cases there is growing mutual trust or a growing ‘mature’ employment relation, as the interviewees described it.

4.4.3 Improved quality of product or service

Quality is the overall term for various positive results from the perspective of the customer or client. That fits of course with an important driver mentioned above. In the cases in the care-sector the main result is: more satisfied clients. The cases in municipalities reported better citizen involvement. Companies from manufacturing industry saw as important results: improvement of throughput and delivery times and reduction of failure/failure costs.

Public and private service companies were satisfied that they improved in delivering customized work or became able to think along with the customer.

4.4.4 Improved innovative capabilities

Innovative behaviour, intrapreneurship, creativity, people taking initiatives and providing ideas to improve processes or products or to save costs. All these improvements were mentioned as results. Talents are better used and people can learn and grow in their job and career after a workplace innovation intervention.

Workers became more flexible and able to work at several different work stations or posts. Also it was said, that people became more involved and showed more responsibility for the course of business.

4.4.5 Transparent processes and a neat workplace

In some cases a redesign of work processes led to more logical and transparent processes as were it a flow. This was often accompanied by a pleasant, neat, clean and well-arranged workplace.

4.5 Conclusion

In The Netherlands the prevalence of workplace innovation practices among companies is not very high, probably around ten percent or a bit higher. Both the quantitative research data and the described cases, however, give clear indications that WPI is beneficial to both organisational performance and quality of work, and that it is supportive to innovative capability of organisations and their members. There is no systematic policy on workplace innovation in The Netherlands, as the dominant neo-liberal political view holds that industries, companies and social partners together bear the first responsibility for the general labour relations. And that the design of work organisations and the management style are a prerogative of the shareholders and the management. The government does support innovation and stimulates economic growth, but not with a particular and systematic interest in workplace innovation. Nonetheless, we observe that several companies, employers, and managers develop practices that have much agreements with what we would call workplace innovation, as can be seen in the two cases of Buurtzorg NL and CTS.

5 Final remarks

5.1 Conclusion

While there is no clear and substantive policy in The Netherlands regarding workplace innovation these days, several companies have undertaken activities and implemented practices that align with the workplace innovation concept, as developed within the European context, illustrated in Oeij, Dhondt and McMurray (2021). In the past there have been policy initiatives to stimulate economic growth, jobs and innovation that stress the relevance or organisational renewal and good quality jobs of employees, as described by Pot in many of his publications (Pot, 2011, 2012; Pot et al., 2021). Workplace innovation initiatives are largely left to the initiative of companies, industrial sectors and trade unions in the context of the political dominance of neo-liberalism.

Nonetheless we observe that several companies take up workplace innovation in one form or another. Roughly 10% of Dutch companies are active with the implementation of similar methods and measures. Often, the companies themselves do not use the term workplace innovation (or social innovation), and they are not per se aware of the debate in the world of research, consultancy and policy making in The Netherlands and Europe.

The two cases in this report, Buurtzorg NL and CTS, are different in their motivation and the goals they want to achieve. For Buurtzorg NL, a non-profit home care organisation, the service delivered to clients is a central goal, and the way to do that is to provide the employees the professional autonomy and facilities to deliver this service. As a consequence the job quality is very high as well. For CTS, an advanced industrial manufacturer, the customers are central too. CTS employees want to develop the best technological solutions for them, but they also want to excel and apply the new knowledge elsewhere. They also want to perform a sustainable business, while at the same time their goal is to grow and be economically profitable.

What both organisations have in common is that their workplace innovation measures are partly of a structural nature. These organisation have changed the organisational structure, the division of labour and management responsibility, in favour of more professional autonomy and a larger voice for the employees at shopfloor level. This structural change was aligned by cultural adaptation, such as the style of leadership, inter-human communication and cooperation (in a team-based context), and behaviour that fits with ‘mature’ employment relationships. Consequently these structural and cultural adaptations as examples of WPI (Oeij & Dhondt, 2017) enabled an easier adoption of new technology and changes, simply because the employees have become highly involved in redesigning the organisation and contributing to innovation. They were involved in the development and implementation of new technology. Thus technology does not take over their work but supports them in performing their work and/or makes it possible to improve the quality of the work delivered. This is in line with findings that workplace innovation positively relates to employee innovation adoption (Oeij et al., 2022).

5.2 Recommendation

What kind of recommendations are appropriate from western scholars and researchers to eastern companies, businesses and employees? We realise that there are significant historical and cultural differences between the West and the East, which make it difficult to transplant ideas and concepts from one region to another. Nonetheless, both regions share an open market capitalist economy which require innovation, effectiveness, efficiency and high quality, as well as deployment of all competencies and talents of a healthy and engaged workforce, to remain competitive. The concept of workplace innovation can be helpful to mediate or

moderate such goals, especially since research shows that WPI has beneficial effects for companies and employees.
European investigations into workplace innovation unfold a couple of conditions that are working well in a western context (Oeij et al., 2015). The study reports about the experiences of more than 50 companies who successfully implemented WPI and achieved positive results. Management, responsible for how an organisation performs, is often taking the initiative to develop and implement workplace innovation practices. They quickly involve employees or their representatives (like a works council) in the development of plans. This leads to achieving a double goal: economic goals and goals to retain or improve the quality and quantity of jobs. Such win-win situations in fact reflect 'mature employment relationships' where the company stakeholders (i.e. management and workers) engage in mature interaction, communication and cooperation. Obviously, this requires the absence of labour conflicts and the willingness to negotiate constructively, aside from the need to discuss strategic points of departure for the company as a whole.
Even within Europe, this is not the mainstream of experiences that companies and employee have. Yet, it is way to success. If the future of work should be the kind of jobs that support citizens to participate in our societies and enhance social cohesion, and if companies and business (both profit and non-profit) depend on the motivation of people to deploy their best resources to the fulfilment of the organisations' goals and innovativeness, we must ask ourselves what kind of relations we need between management and employees. For Europe it is obvious that traditional and exploitative labour relations have become outdated, except for companies who compete on costs with low quality products and services. But if one wishes to be part of the best economies in the world, there are better journeys available. One route is to apply the concept of workplace innovation.

For the situation in The Netherlands the researchers and consultants of TNO (and other organisations) have developed various tools to develop and implement workplace innovation measures and practices. We mention a few of them and provide their reference.

- **Guide to Workplace Innovation**
  - This is a practical guide in five steps to support users in assessing why WPI can be of importance to a company, and to make a start in developing and implementation of a chosen practice.
  - https://ec.europa.eu/docsroom/documents/19187
  - Dhondt, S., Totterdill, P., Boermans, S., Žiauberytė-Jakštienė, R. (2017). Five steps to develop workplace innovation. In: P.R.A. Oeij, D. Rus, and F.D. Pot (Eds.). *Workplace innovation: Theory, research and practice* (pp. 301-319), Series 'Aligning Perspectives on Health, Safety and Well-Being'. Cham (Switzerland): Springer
- **Qualitative business case method for workplace innovation interventions**
  - This is a method to build a case for workplace innovation interventions by trading off qualitative factors against quantitative factors in determining the desired outcomes.
  - Oeij P., de Looze M., ten Have K., van Rhijn G., de Graaf B. (2012). From Productivity Strategy to Business Case: Choosing a Cost-Effective Intervention for Workplace Innovations. JCC: *The Business and Economics Research Journal, 5* (2), 171-184
- **Technology choice method accounting for good jobs**
  - This is a Technology Impact Method to assess the effects of technology on future skills in jobs to retain good quality of work.
  - Oeij, P., Preenen, P. T., Van der Torre, W., Van der Meer, L., & Van den Eerenbeemt, J. (2019). Technological Choice and Workplace Innovation: Towards Efficient and Humanised Work. *European Public & Social Innovation Review, 4*(1), 15-26.

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