



# ***Analyzing the Effectiveness of Contemporary Aging Workforce Management:***

## **The Case of Daimler AG**

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**T**he increase in the average age of many developed countries' populations, evident for many decades, is regarded as a demographic change that will affect societies and organizations alike in the near future. In industrialized countries, stagnating or shrinking fertility rates and a simultaneously growing proportion of citizens approaching retirement age are a potential threat to the sustainability of highly developed welfare and pension fund systems.

Business organizations are facing similar challenges. The demographic change in society is mirrored by the available labor force's demographic composition. Companies located in countries undergoing such a development have experienced an increase in the average age of their employed workforce and the labor pool. In many incumbent organizations in Europe and the U.S., the average worker is already in his or her 40s. A large group of people – the post-Second World War “baby-boom generation” – is rapidly moving towards retirement age. In Germany, for example, the aging organization is nurtured by many companies refraining from hiring new people due to improved production methods and the legal scheme that allows companies to offer workers a government-subsidized early retirement, which expires at the end of 2009.

The effect of increasing average age on organizations has many facets: High-tech businesses are concerned with how a growing number of older employees, who will potentially retire soon, will affect their innovativeness, due to the assumed loss of valuable knowledge; companies that require strenuous physical work are worried about their workers' health and physical performance. In both cases, the organizations are concerned with the potential loss of important knowledge when large cohorts of employees retire.

In this article, we focus our attention on the Mercedes-Benz plant in Bremen, which adopted a strong focus on the physical dimension of aging. Although the potential loss of knowledge and innovativeness is not ignored, the Bremen plant is a production facility, with the majority of its workforce working on production

lines. Consequently, the company's main concern regarding its aging employees is the question of how older workers will cope with the physical tasks required of them.

We specifically address the five health and human resource measures used at the Bremen plant to manage the aging workforce. Based on a triangulation of the available data, especially more than 30 interviews, we discuss these tools with regard to their impact on age-related challenges, such as health, absenteeism, and the integration of a constrained workforce.

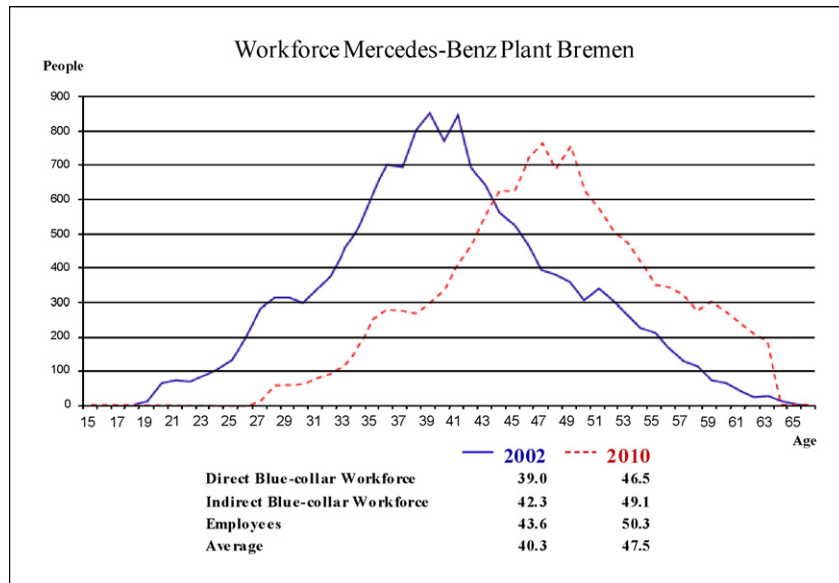
### **THE MERCEDES-BENZ PLANT IN BREMEN**

The Mercedes-Benz plant in Bremen was fully integrated into the Daimler-Benz AG production network in 1978. In 1982, the facility increased its production capacity by more than 700,000 m<sup>2</sup> of shop floor for high-volume car production. Within 10 years, the workforce grew from 5000 to more than 15,000 people in 1989. In 1995, 19.3 percent of all people employed in the Bremen industrial sector worked at the Daimler-Benz AG plant – an indication of this particular production facility's importance for the regional economy. Today, the plant not only makes mass production vehicles such as the Mercedes C and CLK-class, but also prestigious models like the SLK and SL-Class. In 2006, the site built more than 200,000 cars, contributing significantly to the 1.2 million Mercedes vehicles Daimler AG<sup>1</sup> sold worldwide that year.

In terms of the workforce, the plant reached its peak around 2000, with about 16,000 employees with an average age of 38.6. The significant increase in production capacity during the 1980s led to the hiring of a large number of young employees within the same age range – between 20 and 25 years old. Fig. 1 indicates that this resulted in the overall workforce exhibiting a rather homogenous age distribution. The share of employees between 35 and 45 is disproportional.

<sup>1</sup> The company has been called Daimler AG since the sale of Chrysler in 2007.

**FIGURE 1 SCHEMATIC AGE DISTRIBUTION OF THE MERCEDES-BENZ PLANT IN BREMEN.**



tionally high. Although the production capacity of the Bremen plant is increasing continuously, the hiring of new employees has decreased significantly since 1993. International competition and advancements in productivity require and enable the plant to produce more cars with fewer people. This combination of restrictive hiring and the workforce's homogenous age distribution is causing the workforce's average age to increase, which is bound to reach record heights as workers, who fall within the baby boomer range, move towards retirement (see Fig. 1).

In 2008, the average age of the workforce reached approximately 44. Under stable conditions, this average age is expected to increase to 47.5 in 2010. Ten years from now, the average age of the workforce in Bremen could be well beyond 52. With fewer employees required, and with the legal scheme that enables government-subsidized partial retirement due to expire at the end of 2009, the plant will face a growing number of significantly older employees for the first time in its history.

The Bremen plant is primarily interested in the possible effects that a higher average age could have on its workforce's physical performance on the production lines. In the plant's organizational context, this performance is usually defined by key statistics such as the workers' health status, the number of work-related injuries – like back problems – and the proportion of workers with health-related problems affecting and constraining their employability. How a higher average age affects other issues, like innovativeness, is

disregarded, as this has very little influence on worker performance on production lines.

Facing the dual challenge of having to increase competitiveness with a workforce whose competitive performance is potentially limited, the plant management is driven to increase efforts aimed at maintaining its workforce's capabilities and employing them in a value-creating way. A number of measures that are presumed to meet the demographic requirements are applied to counteract the potential downsides of an aging workforce. These measures are introduced in this paper and their effectiveness analyzed in the organizational context.

#### ANALYSIS OF THE EFFECTIVENESS OF THE AGING WORKFORCE MEASURES IN THE MERCEDES-BENZ PLANT IN BREMEN

In the following sections, an introduction is provided to the five health and human resource management tools currently applied and implemented at the Mercedes-Benz plant in Bremen in the context of aging workforce management. This is followed by a discussion of the specific tool, illustrated with relevant quotes from our interviews that shed light on the measure's perceived effectiveness.

#### BACKGROUND OF "KRAFTWERK MOBIL"

As it is implemented at the Mercedes-Benz plant in Bremen, the "Kraftwerk Mobil" is a mobile training

unit to improve the suppleness and strength of employees' abdominal and back muscles. A strong and flexible back and abdomen are considered crucial factors in the prevention of muscle and skeletal injuries, as well as ubiquitous back problems. According to our archival data, at the Bremen plant such injuries and problems account for one-third of all blue-collar workers' health-related issues. The "Kraftwerk Mobil" unit resembles the apparatus found in many gymnasiums for abdominal and back muscle exercises. It is under the fulltime supervision of a trainer who, according to a schedule, physically moves it to the shop floor and the production lines.

After setting up the machine at a fixed location and at a fixed time during a shift, the trainer assists the assigned workers with their workout. Prior to a worker's first training, a computer analysis is undertaken that determines the agility and strength of his or her abdominal and back muscles and measures balance. If deficits are found, the trainer will compile an individualized program, specifying the repetitions and weight required to improve and equalize the muscle performance. Subsequently, a participant has a ten-minute training session once a week, building up strength and agility over a 14-week period. The program is thereafter adjusted to maintain the achieved improvement over another 26-week period. During this time, the participant and the trainer continuously monitor his or her progress, again relying on a computer analysis. During the ten-minute workout, colleagues replace those workers who are training to keep the production process going.

#### **ANALYSIS OF "KRAFTWERK MOBIL"**

From our interviews, we gained the impression that "Kraftwerk Mobil" is a very successful tool that not only preventively improves workers' physical performance but also contributes significantly to the shop floor's motivation and work climate. As one of the trainers mentions:

We receive feedback from the workers that they have fewer or no (physical) problems at all. (...) We also provide things that cannot be measured, like giving advice on losing weight (...) or giving up smoking. (...) The company can only monitor the general health status, but not the general (improved) wellbeing.

The major advantage of this measure is obviously that its threshold is low, due to the training unit being brought directly to the workers on the production lines during working hours. This is not only convenient in terms of accessibility, but it also allows people unfamiliar with such training methods to gain a first impression of what actually happens during such a

workout. Consequently, even those employees who would never consider participating in such an activity, or who are simply not sufficiently motivated to, for example, visit a regular gym, are directly addressed.

As far as the workforce's acceptance and participation are concerned, it seems an important issue that the trainers are actually blue-collar workers with additional qualifications as sport coaches and training supervisors. Another trainer comments:

(...) We can combine our gym experience with our work experience in automobile production. An external person, even a physiotherapist (...) might have no idea of how the physical strain accumulates over the years.

Despite the lack of hard data and the fact that the Kraftwerk Mobil is only a preventive tool that cannot be applied in cases of serious health problems requiring specific therapeutic attention, our interviews identified a strong belief in the tool's potential use. Related organizational processes, like assigning participants for training sessions, work well and also enjoy top management support. Together with other health-related measures, especially ones that are not only preventive but also therapeutic, the Kraftwerk Mobil is regarded as an important tool to improve physical health, workability, motivation, and general wellbeing at the plant.

Apart from this positive feedback, however, we could not identify a specific focus on the aging workforce, since the tool is generally aimed at production line workers' conventional back problems, regardless of their age. Although our interviewees confirmed that there is a general correlation between age and back problems, these problems can appear at any age and are not necessarily a reliable symptom of an aging workforce. Consequently, while this tool is very successful at tackling important, health-related issues preventively, we cannot consider it a specific tool to manage an aging workforce.

#### **BACKGROUND OF "FIT-SHOP"**

The "Fit-Shop" is described as a multimodal and multidisciplinary fitness centre that is a licensed physiotherapeutic practice. The Fit-Shop is located at a central point on the plant premises. It offers a variety of health-related programs and activities, both preventive and therapeutic, well beyond the range of what a normal gym offers. The programs are supervised and guided by skilled personnel from a multidisciplinary background, varying from physiotherapists and sport scientists to psychologists.

Several interviewees confirmed that approximately 40 percent of all sick leave was due to postural and musculoskeletal-system-related injuries. They further

reported that there is a clear correlation between these injuries and the injured workers' age. Consequently, in cooperation with an external provider, a health centre to improve the situation both preventatively and therapeutically was situated within the plant at the end of 2006. As an autarkic unit, the "Fit-Shop" was outsourced, since the necessary know-how, skills, and manpower were not available within the plant. The responsible decision-makers – the plant doctors and health management – acknowledged that the plant had potential multidimensional sources of health-related problems that had to be addressed both adequately and multidimensionally. This facility's unique advantage is that it can provide therapy prescribed by the plant doctor or any external physician, thus offering the patient a single point of treatment.

### **ANALYSIS OF "FIT-SHOP"**

The Fit-Shop appears to be a very appropriate tool for the challenges related to an aging workforce, by not only providing preventive treatment (similar to the Kraftwerk Mobil), but actually treating existing problems, like a herniated disk. The Fit-Shop tackles the most prevalent health problems at the plant by means of a multidimensional approach.

Despite the fact that it wasn't originally designed for managing an aging workforce, all our interview partners generally believed the Fit-Shop to be an important and potentially very successful tool. As the management director of the Fit-Shop reports:

I would say that we could improve [the health and work capability] of those really participating in our program between 90 and 100 percent. Of course, they have to continue doing something. We have to activate them to do that.

All the interviewees emphasized that this measure still had to prove itself. They also felt that the outsourcing of such tools does not only have advantages, but also creates some challenges. The Fit-Shop employees still have to learn about the organizational particularities and earn the workers' trust. They are already doing well by actually accompanying workers to their workstations and prescribing individual therapeutic measures right where the problem starts. Currently, the combination of therapeutic treatment with an individualized work assessment is a unique approach that still requires some mutual learning. As a member of the shop council emphasizes:

Just because we have a Fit-Shop and Kraftwerk Mobil, this does not mean that the health status will improve.

It is clear that, like the Kraftwerk Mobil, this tool can only address the symptoms of the aging workforce

(e.g., health issues, absenteeism, deployment constraints, etc.), and does not offer a long-term aging workforce management perspective on, for example, how to actually address the source of such issues, which is the employed workforce's increasing average age.

### **BACKGROUND OF "ROTATION"**

Usually, job rotation is understood as an alternating system that schedules the deployment of employees in an organizational work setting within a defined range of workstations or tasks. While these assignments are usually for a longer term at the white-collar worker level and are less repetitive, within our focus on blue-collar workers, rotations between workstations occur several times a day, or even several times per hour.

The intention of job rotation is usually to broaden employees' perspectives and skill sets, as well as to contribute to job enrichment by offering variety. In the following discussion, we do not refer to any general definition of job rotation, but to the specific elaboration of the concept of rotation as found in the Mercedes-Benz Production System (MPS) standards and as implemented at the plant. The basic assumption is that rotation is beneficial with regard to variety, experiences, alternate physical strain, and job flexibility. It has to be economically efficient, and the involved workers' required skills and qualifications have to be guaranteed.

### **ANALYSIS OF "ROTATION"**

The rotation system was introduced long before the topic of an aging workforce became urgent. As we learned from our data, its current status is the result of a financial and quality-driven development that no longer emphasizes extended work content, but a more focused and standardized workflow. To date this paradigm shift has culminated in the introduction of the MPS and in the work processes' further standardization. According to the head of the MPS office at the Bremen plant:

We limited rotation with regards to MPS to the work group. Before that, it had a broader range.

Rotation is perceived even more critically with regard to the aging workforce. Our data provide a clear indication that rotation cannot be considered a specific measure for managing the aging workforce. Rather, it is hampered by the growing number of constrained workers, who are usually associated with a higher average age. A shop floor manager on this issue:

The problem is that although I may want to regard rotation positively, I cannot because I

do not have the personnel to make it a positive tool. If I have people with constraints, then there are constraints in rotation as well”.

These quotes suggest that although rotation is perceived as a suitable tool for avoiding unnecessary physical strain and improving quality, it is generally not only experienced as ineffective with regard to an aging workforce, but also becomes impracticable as a result of them.

### **BACKGROUND OF “ERGONOMICS”**

With respect to the Mercedes-Benz plant in Bremen, ergonomics is about analyzing, measuring, and evaluating human work and the related strain in order to subsequently deduce appropriate measures to improve disequilibria between human work design and economic efficiency. The basic parameters between which ergonomists can act are strictly defined by a number of physical, economic, and legal boundaries and rules, as well as the specific organizational culture, which we do not intend to address in detail.

We identified three basic steps and tools that are used consecutively at the Mercedes-Benz plant in Bremen. First, there is a guideline for the integration of the constrained workforce. This is based on the matching of a workstation's (physical) requirement profiles with workers' specific (physical) capabilities. This is done by means of a manual analysis of body posture (in terms of posture type and the time to be spent at each workstation). Second, the “system for the analysis of body posture” (SAK – System zur Analyse von Körperhaltung) is applied. Although similar to the workstation requirement profile, this system is computer-based and allows a scientifically based ergonomic index to be calculated. Finally, the ergonomists in Bremen apply the “ergonomic workstation evaluation” (EAB – Ergonomische Arbeitsplatz Beurteilung). This, too, is a computer-based system similar to the SAK, but the result is a visual evaluation of the workstation in green (good), yellow (minor problems), and red (very problematic) categories.

### **ANALYSIS OF “ERGONOMICS”**

More than any other tool described in the course of this article, ergonomics is an extremely mature, common, and multidimensional field that is far from exclusively focused on the aging workforce. However, by addressing human issues such as facilitating work, motivating people, and decreasing work-related injuries and illnesses, ergonomics does touch on important concerns that are characteristic of the workforce's increasing average age, such as the growing number of constrained workers.

If just the matching of constrained workers with suitable workstations – where they can still perform value-adding work – is taken into consideration, the feedback is very positive. The head of human resource training in Bremen was involved in the evaluation and subsequent matching processes. She confirms that if these evaluations are done well, an excellent fit can be generated between a task and a worker. She nevertheless mentions that this alone is not an adequate tool to address the aging workforce's problems, as it is mainly focused on constrained workers and does not acknowledge other, related issues.

The latter is not, however, the only concern regarding ergonomic measures, since others go far beyond. This is confirmed by the head of the ergonomic production line design's comments:

I don't think [the aging workforce] will have a great effect and even if it did, we would manage. (...) Everything can be designed so that everyone can do any job. Whether this would be cost effective, is another matter, of course.

This is an indication of a potential conflict within ergonomic measures: facilitating work despite increasing labor costs. The former head of the ergonomic shop floor management in Bremen explains why this is the precise aging workforce problem that will have to be faced from an ergonomic perspective:

We have aging workforce and ergonomic measures on the one hand and performance and competition on the other. There has to be a match. If I only care about ergonomics, I cannot make any money. If I only care about the money, this will result in high absenteeism due to illness. The one issue is expensive, but so is the other!

Although, ergonomics at the plant seems to be a well-developed field requiring little improvement, it is constrained by a number of financial and legal restrictions. Furthermore, it does not address the increasing average age and the associated increase in physical problems in the long term.

### **BACKGROUND OF “DEMOGRAPHICALLY ORIENTED RELOCATION”**

In the automobile business, the personnel required for the production of a specific model are largely dependent on the car's product life cycle. The introduction of a new model can create a peak of orders that results in very high plant utilization. At the end of the product life cycle, usually between five and seven years after launch, models often do not require full production capacity. Since workers cannot just be laid off in

keeping with these changes in demand, they are transferred from places with overcapacity to places that require more manpower. Previously, the younger and newer workers had been considered for relocation, but to avoid an imbalance with regard to age in different areas of the plant, demographically oriented relocation was later introduced.

Based on each worker's age, the demographic structure of the relocating contingent was composed in such a way that it mirrored the structure of all the workers in a "Meistere," thus integrating all age groups. This was achieved by first structuring the Meistere in groups composed of the under 30s, those between 31 and 40, 41 and 50, and 50 and above. Next, the individuals in these groups were ranked according to job tenure. The proportion of the age groups of those selected for relocation had to be similar to those within the overall age structure. Those with the shortest job tenure were selected first. Demographically oriented relocation avoided the pitfall of extracting too many young workers from one production hall, thus artificially increasing the average age, while simultaneously accumulating relatively younger ones in the absorbing production facility.

#### **ANALYSIS OF "DEMOGRAPHICALLY ORIENTED RELOCATION"**

The most significant point about the demographically oriented relocation of personnel is that it is not implemented coherently across the whole plant. The main reason for this is that most available employees are already in more or less the same advanced age group, which makes a demographic differentiation in the above mentioned age categories obsolete. Moreover, in order to survive in the day-to-day business under the current personnel structure, shop floor leaders have had to sacrifice some criteria in order to avoid losing important, capable workers to handle a future model launch. A member of the work council explains:

Owing to the lack of new personnel, we also reach our limits (...) [In some] departments we already have only two age groups from which to choose our contingent: From 31 to 40 and 41 to 50, that's it!

Ironically, a process that was initially designed to manage age-related imbalances caused by relocation problems, is now actually hampered by the reason for its very existence. Demographically oriented relocation is no longer practicable due to the already limited fully deployable human resources. This is a clear indication that despite the system's success in avoiding age imbalances, this tool cannot appropriately manage

the aging workforce by itself. As currently constituted, the relocation process is simply combating the symptoms of the aging workforce but does not have a preventive character. The shop floor manager comments:

[The future age development] is going to be dramatic. In 2010 we have another model launch, which concerns me greatly. There is no way of ensuring that we will have all the personnel we need by that time. (...) I do not have a solution for this problem.

#### **CONCLUSION**

According to findings that the authors derived from data across organizations in automobile manufacturing, the above discussed approaches to the aging workforce and related measures are characteristic of this particular industry. We consequently assume that our findings have a certain, though methodologically limited, generalizability with respect to comparable organizations.

Our results challenge the common management opinion, as well as business research and literature findings on similar tools, that the steps and measures which are currently applied are sufficient to counteract the potential downside of an aging workforce. One of the most important insights from our researched case is that while a number of tools and measures are subcategorized under the term aging workforce management, they are, first, not specifically intended to target the related challenges and, second, cannot prevent the employed workforce from becoming older on average, as they only address the related short-term symptoms. A restrictive hiring policy combined with an increasing average age will eventually lead to an increasing number of people with physical problems related to aging, thus challenging the described measures and tools' potential capacity.

Successful and sustainable aging workforce management is feasible if appropriate and customized solutions were to be designed in line with the challenges faced by each plant and/or company. This article is therefore also a strong plea for the development of specific aging workforce management tools that go beyond addressing short-term symptoms and consider the organizations' individual demographic preconditions and long-term demographic projections, as well as their envisioned strategic competitiveness.



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