VIPs VIBES

METHODOLOGICAL

Handbook for

VIPS ASSISTANTS

and mentors

WorkPackage 2

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INTRODUCTION

Greetings to all stakeholders committed to fostering an inclusive and diverse bakery industry!

This **Methodological Handbook** serves as a compass both for individuals with Visual Impairments (VIPs) seeking entry into the labour market as bakery assistants and for companies eager to embrace inclusivity by establishing the pivotal role of the mentor, a facilitator for professional inclusion.

This comprehensive guide is designed to provide a systematic and effective approach for supporting and mentoring individuals with visual impairments as they engage in the art and science of baking. Our goal is to empower both assistants and mentors with the knowledge, strategies, and tools necessary to create an inclusive and enriching learning environment.

Throughout this handbook, you will find step-by-step methodologies, practical tips, and adaptable techniques tailored to the unique needs of individuals with visual impairments. Baking is a sensory experience that can be enjoyed by everyone, and this handbook aims to foster independence, confidence, and skill development among those with visual impairments.

As you embark on this journey of mentorship and assistance, remember that your role is crucial in creating an environment where individuals with visual impairments can thrive and express their creativity through the art of baking. Let this handbook be your guide in making the baking experience accessible, enjoyable, and rewarding for all.

In this handbook, you will find practical information, helpful tips, and tailored strategies to facilitate learning and practising baking for those with visual impairments. Each section is designed to offer guidance and support within the learning process, encouraging autonomy and independence.

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The methodological Handbook will be divided in two sections:

- The **first section** is dedicated to VIPs who aspire to contribute their skills and passion to the dynamic world of baking. Here, we embark on a comprehensive journey, equipping VIPs with the knowledge, skills, and adaptive techniques necessary for successful integration into the bakery field. Our aim is to empower VIPs to confidently pursue careers as bakery assistants, fostering independence and unleashing their creative potential within the industry.

- The **second section** is tailored for companies eager to embrace diversity by creating an inclusive space for VIP workers. Central to this endeavour is the introduction of the mentor - a professional committed to facilitating the seamless inclusion of VIPs in bakery workplaces. This section provides guidance, skills, and insights for bakery owners, managers, and employees, emphasising the transformative impact of mentorship on building supportive, accessible, and inclusive bakery environments.

Together, through mentorship and shared commitment, we aim to break down barriers and redefine the narrative surrounding employment for individuals with visual impairments. Join us in this collective effort to create a bakery industry that not only values diversity but actively fosters an environment where every individual, regardless of visual ability, can contribute, grow, and thrive. Let this handbook be a catalyst for positive change, shaping a future where inclusion is not just a goal but a lived reality in the bakery workplace.

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SECTION I

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Module 1. Bakery products: history and importance

Welcome to **Module 1** of our Methodological Handbook, where we embark on an enriching journey into the captivating world of bakery products. The history of baking is as rich and diverse as the varieties of bread and pastries we enjoy today. This journey through the origins of baking traces the evolution from ancient bread-making techniques to the sophisticated pastries and cakes of various cultures. This module serves as the cornerstone of our exploration, delving into the historical tapestry and contemporary significance of bakery items.

1.1 Historical evolution of bakery products

1.1.1 The origins of baking

Did you know that the history of baking dates back thousands of years to ancient civilizations? Baking, one of humanity's oldest cooking methods, is a fascinating journey through time, showcasing cultural, technological, and culinary evolution.

Bakery items, especially bread, boast a rich developmental history. Recent archaeological findings suggest that the practice of baking might have commenced as early as 23,000 years ago, around 21,000 BC, during the **Palaeolithic Period**. In this era, humanity stumbled upon the wonders of wheat, learning to blend wheat grain meal with water and subsequently bake it on stones heated by fire. This marked the genesis of the first flatbread crafted by human hands.

Progressing to the period of 2600–3000 BC, ancient **Egyptians** discovered that mixing flour and water together and leaving it to sit for several days would cause wild yeasts to start fermenting, resulting in a risen dough. Their innovation laid the groundwork for future advancements in bread making, influencing countless generations of bakers around the world.

The art of baking was further refined in **Mesopotamia**, where the world's first ovens were built. The Mesopotamians developed clay ovens that allowed for more controlled and consistent heating. These

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ovens were typically dome-shaped or cylindrical and were made from clay or mud bricks, designed to retain heat. Some were even multi-chambered, allowing bakers to cook different items at various temperatures. The Sumerians created complex bread recipes, which were integral to their diet and rituals.

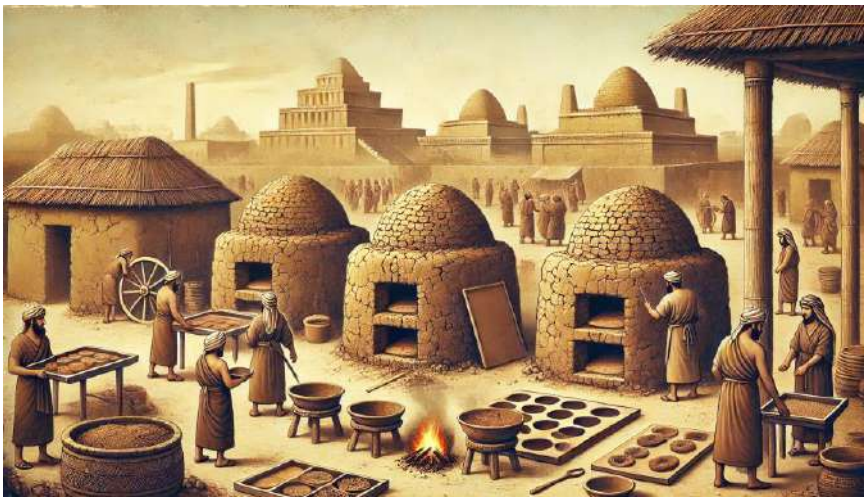

Figure 1: This AI-generated image shows an ancient Mesopotamian scene with several large clay ovens. People in traditional attire are tending the ovens, baking bread and cooking. The background includes mud-brick buildings and a ziggurat, reflecting the village setting. The image captures the earthy tones and textures of the clay ovens and the daily life of Mesopotamians.

The **Greeks and Romans** greatly expanded baking techniques. The Greeks were pioneers in baking various breads using grains like barley and wheat. They experimented with different flours, ingredients such as milk, honey, and cheese, and created various shapes and sizes. Baking became a profession in Greece, leading to the establishment of commercial bakeries. The Romans advanced baking technology with improved milling techniques and ovens that allowed better temperature control and product consistency. They developed large bakeries to serve more people, highlighting bread's importance in their society. Roman baking also included pastries, cakes, and confections, showing a complexity and love for sweet goods.

During the **Middle Ages**, baking changed a lot thanks to baker's guilds in Europe. These guilds helped standardise recipes, techniques, and the sizes and weights of bread loaves, making sure everything was consistent and fair. They also enforced quality control, inspecting bakeries and their products to keep high standards. Guilds

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offered training and apprenticeship programs, ensuring baking skills were passed down through generations. Bread varieties became more diverse, with each region creating its own types based on local grains, climate, and cultural tastes. There was also a clear difference in bread consumption based on social class: the wealthy enjoyed fine, white bread, while poorer people ate darker, coarser bread.

The **Renaissance** brought significant advancements in baking, thanks to the introduction of refined sugar and the use of mechanical mixers and more refined techniques. This period marked a clear distinction between bread baking and pastry making. Pastry making evolved as cooks and bakers experimented with various types of dough, leading to the creation of puff pastries, shortcrust, and choux. The Renaissance was also a time of exploration and cultural exchange. New ingredients and techniques from Asia, the Americas, and Africa were integrated into European baking, enriching the craft with fresh flavours and methods, making baking even more diverse and creative.

Contemporary bakery products showcase a blend of global influences, technological advancements, and a focus on health and dietary preferences. Innovation in baking techniques drives the industry, showing its adaptability and dedication to meeting changing consumer needs and using new technologies.

1.1.2 Innovation in baking techniques

Bakers today are using **non-traditional flours** like almond, coconut, chickpea, and quinoa to cater to gluten-free and health-conscious customers. They are adding **ingredients** like chia seeds, flaxseeds, and matcha to make baked goods healthier and tastier. Bakers are also creating new sourdough starters and letting dough ferment longer for better flavour and digestion, mixing old methods with new ones.

Modern ovens and equipment give precise control over baking conditions, ensuring perfect results every time. Robots and automated systems are making baking more efficient and consistent, especially in big bakeries. To reduce waste, bakers are using leftover grains from breweries and overripe fruits. They are also focusing on

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local and organic ingredients to be more eco-friendly and support local farmers.

Healthier baked goods with less sugar or alternative sweeteners like stevia are becoming popular. Bakers are adding probiotics, protein, and fibre to make their products even healthier. They are also combining different culinary traditions, like using Asian ingredients in European pastries.

Consumers can now join in with **DIY (Do It Yourself) baking kits** and interactive baking experiences. These trends show how the baking industry is growing and coming up with new and exciting products.

Figure 2 This AI-generated image shows various types of bread on a rustic wooden table. The breads include chapati, which is flat and round; pita, which is slightly puffed with a pocket; sourdough, with a crusty exterior and airy interior; and multigrain bread, topped with seeds. The background is simple, highlighting the distinct textures and colours of each type of bread.

1.2 Importance of bakery products

1. **Cultural significance.** Bakery products hold a significant place in various cultures worldwide, often transcending their role as mere food items to embody deeper symbolic meanings, participate in rituals, and influence societal norms. Let's explore some of the cultural significance of bakery products across different cultures.

2. **Religious rituals and celebrations.** In Christianity, bread symbolises the body of Christ, particularly during the Eucharist, signifying unity and communal sharing. Jewish tradition uses

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challah during Sabbath and holidays, representing joy and festivity, while matzah is crucial during Passover, symbolising freedom and deliverance. In Islamic cultures, bread is highly respected, often seen as a gift from God, and its wastage is discouraged, reflecting gratitude and sustenance.

3. **Symbolism and tradition.** In many cultures, bread symbolises life, prosperity, and health. For instance, in Romania, and in some Slavic countries, bread, often paired with salt, is a traditional symbol of hospitality. In Asian cultures, rice cakes and steamed buns are not just dietary staples but also integral to festivals and celebrations, symbolising luck, wealth, and unity.

Figure 3 This AI-generated image depicts Romanians participating in a traditional bread and salt ceremony. The scene features people dressed in traditional Romanian attire, presenting a round loaf of bread and a bowl of salt. The environment is festive and welcoming, with cultural elements such as embroidered clothing and rustic decorations. The background includes a simple, rustic setting, emphasising the cultural significance of this welcoming gesture.

4. **Festive and commemorative roles.** Special bread and pastries are central to many celebrations. For example, the 'Rosca de Reyes' in Hispanic cultures during Epiphany, the 'Pan de Muerto' for the Day of the Dead in Mexico, or the 'Mooncakes' during the Mid-Autumn Festival in China. Wedding cakes, a prominent feature in Western weddings, symbolise good fortune and fertility, extending back to ancient Roman traditions of breaking bread over the bride's head for luck.

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Figure 4: This AI-generated image depicts special breads and pastries central to various cultural celebrations. The scene includes: Rosca de Reyes: A large, oval-shaped bread decorated with colourful candied fruits, symbolising the Epiphany in Hispanic cultures., Pan de Muerto: Round bread with bone-shaped decorations on top, representing the Day of the Dead in Mexico, Mooncakes: Circular pastries with intricate designs on the surface, commonly enjoyed during the Mid-Autumn Festival in China, Wedding Cake: An elegant, multi-tiered cake adorned with decorative icing and flowers.

5. **Artisanal and community identity.** Artisanal baking has seen a resurgence, emphasising traditional methods, local ingredients, and unique regional flavours, fostering a sense of community and cultural identity. Bakeries often serve as community hubs, especially in small towns and neighbourhoods, where the act of sharing bread fosters social bonds and communal solidarity.

6. **Socio-economic indicators.** Historically, the type of bread consumed was an indicator of social status - white bread for the affluent and darker, denser bread for the less fortunate, reflecting economic disparities. The global spread and adaptation of bakery products, such as the croissant's journey from Austria to France, showcase cultural exchange and economic dynamics.

7. **Evolution and adaptation.** The global diaspora and fusion cuisines have led to innovative bakery products that blend traditions, like the cronut (croissant-doughnut hybrid) in the US or Japanese-European pastry fusions, reflecting cultural adaptability and global interconnectedness.

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1.2.1 Economic contributions of the bakery industry

The bakery industry is crucial to the global economy, affecting local and international levels. It creates jobs, supports supply chains, drives innovation, and influences consumer spending.

Locally, bakeries provide jobs for bakers, pastry chefs, sales staff, and administrative workers. They also create jobs for suppliers, equipment maintenance, and transportation services. Small bakeries boost local economies by buying ingredients from nearby farmers, revitalising neighbourhoods, and fostering a sense of community.

Nationally, the bakery industry adds significantly to the economy, especially in countries with strong food sectors. It includes small bakeries and large manufacturing plants, all contributing to tax revenue through sales, income, and business taxes.

Globally, the bakery industry thrives on international trade, with countries exporting and importing baked goods and ingredients. This trade supports economies worldwide and ensures a diverse range of products for consumers.

The bakery industry is always innovating, following trends in health, convenience, and premium products, which drives market growth and spending. Bakery items are essential in many cultures, keeping consumer demand steady even during tough economic times.

Overall, the bakery industry's importance is evident in its job creation, economic contributions, international trade, and ability to innovate and meet consumer needs. Its impact is felt locally, nationally, and globally, making it a key part of the food industry.

1.2.2 Contemporary importance in society

Bakery products hold a significant place in contemporary society, influencing culinary trends, playing central roles in celebrations and cultural practices, and being a staple in daily life.

Bakery items like bread, rolls, and muffins provide essential carbohydrates and fibres, making them key to daily diets around the world. The rise of **on-the-go lifestyles** has increased the demand for portable and convenient baked goods, such as handheld pastries,

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energy bars, and breakfast sandwiches, catering to the fast-paced nature of modern life. **Artisanal and craft baking** have become popular again. **Health and wellness trends** have also had a big impact on bakery products, leading to more gluten-free, organic, low-carb, and plant-based options as people become more health-conscious.

Bakery products are central to numerous cultural traditions and celebrations, for example, birthday cakes, wedding cakes, and holiday-specific baked goods like Christmas cookies or mooncakes for the Mid-Autumn Festival. These products are not just food items but symbols of joy, unity, and tradition, playing a crucial role in the observance of cultural and personal milestones. Bakeries often serve as communal spaces where people gather, fostering a sense of community and belonging. The act of **sharing** bakery products, whether in a family setting or communal gatherings, reinforces social bonds and cultural traditions, underscoring the role of food in shared human experience.

The **globalisation** of food has brought a variety of bakery products to new markets, resulting in fusion creations that blend different culinary traditions, such as cronuts (croissant-doughnut hybrids) and matcha-flavoured pastries. This cross-cultural exchange in baking diversifies the culinary landscape and promotes cultural understanding and appreciation through food.

In summary, bakery products in contemporary society are much more than just sustenance; they are an integral part of daily nutrition, a reflection of culinary trends and health consciousness, a vital element of celebrations and traditions, and a medium for social connection and cultural exchange.

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Figure 5: This AI-generated image illustrates the contemporary importance of bread and pastries in society. The scene features a rustic table laden with a variety of breads and pastries, including whole grain bread, baguettes, croissants, and artisanal loaves. Around the table, people from diverse cultures and backgrounds are gathered, enjoying the food together. The setting combines elements of a modern bakery with a community gathering, emphasising the nutritional, economic, cultural, and social significance of bread and pastries in today's world. The overall atmosphere is warm and inviting, reflecting cultural exchange and unity through the shared experience of enjoying these baked goods.

Module 2. Food Science: nutrition and anti-waste rules

Understanding food science nutrition and anti-waste regulation is fundamental. The knowledge on this matter enhances the quality and health aspects of baked goods, aligning businesses with consumer expectations. Working with anti-waste rules gives a significant contribution not only with sustainability but even with competitive advantage. This module gives multiple normative and empirical insights on the food waste regulation sector more precisely in the bakery industry, promoting an informative approach aimed at emphasising efficiency and ethics.

Food wastage is indeed a major issue across the globe, tackling multiple industries and sectors, including the bakery. Bread waste represents a considerable part of food waste and it bears the responsibility to play its part in reducing the environmental impact and creating a more sustainable future. In the bakery sector, where bread and other baked goods are produced and sold, managing food

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wastage is critical. This includes addressing challenges such as surplus production, unsold inventory, and expired products. Each of these factors not only contributes to economic losses but also has environmental implications.

2.1. Strategies for reducing bread waste

To address these issues, some solutions have been implemented. First of all, implementing advanced **inventory management** systems enables bakeries to monitor stock levels accurately. This helps in reducing overproduction by ensuring that only the necessary amount of bread is baked and by minimising excess production, bakeries can effectively reduce waste while optimising resource utilisation. Bakeries can repurpose leftovers into new products, such as turning unsold bread into breadcrumbs or croutons, thus reducing waste and creating additional revenue streams.

Moreover, **adjusting portion sizes** based on consumer demand ensures that bakeries produce the right amount of bread, reducing excess production and waste. Providing a culture of waste awareness among employees and collaborating with local food banks to significantly reduce wastage plays a huge role in this process. In fact, encouraging employees to identify and implement improvement ideas fosters a proactive approach to minimising bread waste. **Partnering with local food banks or charities** provides bakeries with avenues to donate surplus bread that is still safe for consumption but may not meet retail standards. This not only reduces waste but also contributes positively to the community by addressing food insecurity.

Moreover, effective storage implementation and **food preservation techniques** play also a crucial role, such as freezing or vacuum sealing, which helps extend the shelf life of bread products. This reduces spoilage and ensures that bread remains fresh and usable for a longer period. So, by adopting sustainable practices and strategies in the bakery sector and minimising food wastage, the bakery industry not only prevents resource losses but also contributes to a more eco-friendly society, addressing broader issues such as hunger and malnutrition.

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2.2 Broader impacts and sustainable development

Efforts made to reduce food loss contribute significantly in achieving sustainable development through social, environmental and economical assets. Food loss and waste (FLW) have indeed an impact on sustainability, nutrition, food security, and environmental causes too. Statistics reveal that approximately 14 percent of food is lost before reaching retail, with an additional 17 percent wasted at the retail and consumer levels. The food loss and waste issue even has an enormous impact on issues such as hunger, malnutrition, and greenhouse gas emissions, requiring the impellent and costly need for targeted intervention.

2.3. Legal and policy measures

The European Union (EU) has set legally binding goals to address food waste, requiring member states to achieve specific reduction targets by 2030. Thus, the pledge is well tied with the Sustainable Development Goal 12.3, which emphasises the key role of robust governance frameworks in overcoming infrastructural and technological bottlenecks.

Collaborative efforts across the supply chain are essential, highlighted by initiatives like food banks and community-led nights redistributing surplus food for environmental and societal benefits. The **EU Platform on Food Losses and Food Waste** facilitates such cooperation, enhancing information sharing to accelerate progress towards SDG goals.

Rules and laws like the **EU's Revised Waste Legislation** are among the factors that really help the whole situation with FLW, including incentives and waste taxation to drive innovation and discourage wasteful practices. The aim of this Strategy is to involve member states in putting preventive initiatives into operation, donations to food banks being encouraged, and giving rewards for less waste production.

The area of food science has a critical role in the mitigation of FLW since it is concerned with the development of new technologies while also guaranteeing safe food of a good nutritional status. Studies devoted to packaging, shelf-life preservation and variation of

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ingredients can be useful to decrease waste on the processing line. Further, customer awareness creation on FLW helps modify behaviours, encouraging **sustainable consumption behaviours.**

2.4. Circular economy and innovative approaches

Innovative approaches like the circular economy are pivotal in combating food waste. Examples include initiatives converting beer waste into bread, illustrating how resources can be reused within the same cycle. Fresh bread waste from straight to consumers accounts for 12% of the global food waste. Operators may find a way here to influence the environmental issue. For example, the “Brussels Beer Project” co. is aimed to upcycle 10 tons of bread yearly which shows how a circular economy can take care of the waste problem.

Through preparing flour for brewing and then reusing spent grain for bread making, the loop is seamlessly closed and nanomaterial-based production comes to life. That promotes a sustainable approach and raw material recycling.

The **incorporation of food science and nutrition** plays a pivotal role in reducing food loss and waste, particularly through advancements in packaging technologies, shelf-life preservation methods, and ingredient diversification.

Embracing sustainable practices also aligns with **consumers’ values**, providing a competitive edge, fostering loyalty, and building trust. Achieving an integrated strategy for FLW reduction requires a combination of policy interventions, collaborative initiatives, and ongoing improvements in food science and technology. Through wasting reforms and sustainable engagement, companies can give a positive contribution to society and its environment.

In addition to that, adopting **zero waste practices** enables individuals and businesses to significantly diminish their environmental footprint, conserve resources, and contribute to a sustainable future. It involves shifting towards mindful consumption, reusing materials, and implementing responsible waste management practices throughout the product lifecycle. Zero waste embodies a philosophy and principles that refer to an approach that aims to minimise or

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completely eliminate food waste throughout the entire food supply chain, from production to consumption.

Bakeries can **creatively repurpose** day-old bread into delicious items like croutons, bread pudding, or French toast, often offering discounts to promote their consumption.

They can also adopt **environmentally friendly practices** such as using minimal or eco-friendly packaging for takeaway items and encouraging customers to bring their own containers for bulk purchases or take-out orders. These initiatives not only reduce food waste but also support sustainability efforts within the community.

Another innovative approach involves **utilising all parts of ingredients**; for example, making candied zest from citrus peels or incorporating leftover fruit puree from pastry fillings into smoothies or sauces.

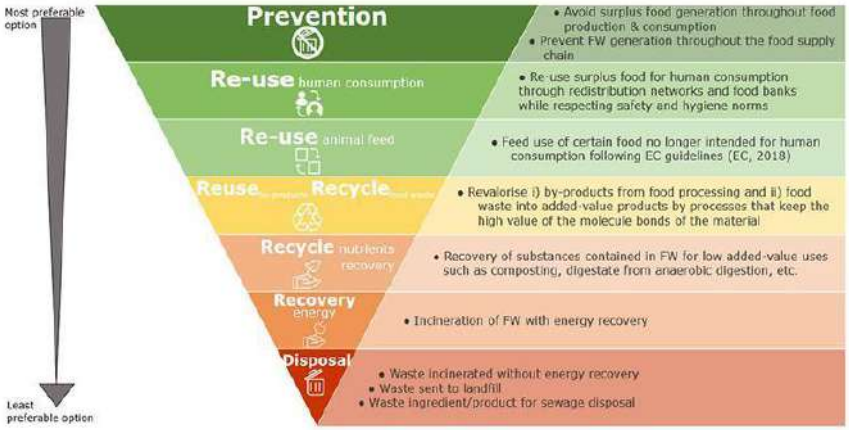

Figure 6: The figure represents the Hierarchy for prioritisation of food surplus, by-products and food waste (FW) prevention strategies. This framework should guide the formulation of effective strategies aimed at reducing food waste. At the top of the pyramid are prevention measures, followed by pathways for reusing surplus food fit for human consumption, repurposing food no longer suitable for humans as animal feed, recycling materials into high-value products (with partial degradation), nutrient recovery, energy recovery, and, as the least favoured option, disposal of food waste.

2.5. Best practices

To resume, in the context of food science, nutrition, and anti-waste rules in the bakery industry, several best practices can be implemented to ensure food quality and waste reduction:

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1. **Ingredient management**. By periodically checking the expiry labels of bakery materials before they are used we can make sure that we are firstly using them in time, before they go past their dates of expiration or spoil, and thus significantly reduce wastage. Lastly, a fridge will provide further help in prolonging the food conditions and deterioration while not being used.

2. **Control humidity levels.** It is also important to control humidity levels in storage areas to prevent moisture buildup, which can lead to mould growth and spoilage and to use appropriate storage containers that are clean, dry, and sealable to protect bakery products from contamination and environmental factors.

3. **Quality assurance systems**. There is great need for control systems to be established at the highest level in the system of HACCP (Hazard analysis and critical control points), which is a systematic preventive approach to food safety that identifies, evaluates, and controls hazards that are significant for food safety. We will discuss the HACCP system in detail in module 1.6.

4. **Monitoring and reporting food waste**. Bakeries should try to keep track and report their wastes over time. Alongside the programs which support the prevention of food waste, encouraging food donation systematically and moving towards less waste are important issues to be addressed. It could be useful for a baker to determine which part of the production process is causing more food waste, try to mitigate the problem and track their progress over time.

5. **Standardising measurement methodology**. In order to ensure safety and accuracy in the measurement of food waste, the EU provides a standardised set of reporting guidelines. This standardised European way of documenting food waste fulfils general requirements for every business and monitors the process of striving for a sustainable world.

6. **Continuous improvement and knowledge exchange**. The EU Platform on Food Losses and Food Waste serves as a tool where information exchange and technique transfer are fostered. Hence,

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bakeries become food savers and their skill sets in this field are improved.

Module 3. Chemistry in the kitchen: fermentation and baking yeasts

It is widely known that bread consumption and use covers a great part in the everyday diet of the average person not only for the nutrients provided by it but also a creative way for people in the food industry. The different shapes, aromas, flavours and ingredients varies as there are several procedures for its manufacture that are mainly owed to the knowledge each generation obtains of its tradition, techniques that even apply till this day in all of the households. As the science continues to progress, the multifaceted and variety in the procedures of bread making has evolved and encouraged the mass production of bread with good quality and durability. Such procedure which impacts the art of bread making is the process of fermentation, where yeast plays a pivotal role. This piece will explore the significance of fermentation and yeast in bread making, explaining their role, impact and benefits on the final product.

3.1 Yeasts and fermentation

Fermentation is a biological process where microorganisms metabolise carbohydrates, producing energy and various byproducts. In bread making, fermentation serves multiple crucial functions and this is achieved with the aid of yeast. Yeast is a microorganism that falls within the Fungi kingdom, specifically within the division Ascomycota. The most universally used yeast in bread making is Saccharomyces cerevisiae, although other species like Candida milleri and Saccharomyces exiguus are also utilised in various bread-making traditions. Yeasts have three main purposes:

First of all, a crucial role of the yeast is considered to be a **leavening agent**, in other words, it has the ability to leaven dough. Yeast consumes sugars present in the flour or added to the dough, metabolising them to produce carbon dioxide (CO2) and ethanol

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(alcohol) as byproducts. The CO2 gets trapped in the dough, causing it to rise and creating air pockets that give bread its characteristic light and airy texture.

Secondly, the yeast works as a **flavour** development that contributes significantly to the flavour profile of bread. During fermentation, yeast produces organic acids such as acetic acid and lactic acid, as well as other flavour compounds like esters and aldehydes. These compounds contribute to the rich, complex flavour of bread, particularly in sourdough varieties. In addition, they help regulate the dough's pH, which influences gluten formation and enzymatic activity.

Thirdly, yeast fermentation impacts **gluten** development in the bread dough. As yeast ferments sugars and produces CO2, the gas gets trapped in the gluten network formed by wheat proteins (glutenin and gliadin). This network gives bread its structure and elasticity, allowing it to expand during fermentation and baking.

Various forms of yeast are employed in bread making:

- **Active dry yeast**: This type of yeast is the most frequently accessible in any food store. Active dry yeast is made up of dried yeast cells along with a small portion of inactive material to help it stay stable during storage. Prior to use, it must be rehydrated in warm water (approximately 43°Celcius) along with a small amount of sugar to activate it.
- I**nstant yeast** (also acknowledged as Rapid-Rise or Quick-Rise Yeast): Instant yeast is similar to active dry yeast but is milled into smaller particles and undergoes a different drying process, making it more active and faster-acting. It can be mixed directly with flour without needing pre-activation, saving time in the bread-making process.
- **Fresh yeast** (Compressed Yeast): Fresh yeast is moist and perishable, typically sold in small cakes. It has a higher water content than dried yeast and needs to be refrigerated. Fresh yeast is easily crumbled and can be added directly to flour or dissolved in warm water before use.

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- **Sourdough starter**: Sourdough bread relies on wild yeast and lactobacilli present in a sourdough starter, a mixture of flour and water that has been fermented over time. This starter culture is maintained by regularly feeding it with fresh flour and water. Sourdough starter introduces a unique flavour profile to bread and requires a longer fermentation time compared to commercial yeast.

Factors which affect the effectiveness of the fermentation and yeast are:

- pH: Typically acidic to slightly acidic (4.5–6.5).
- Temperature: Ranges between 35–45°Celcius. Lower temperatures slow fermentation, while higher temperatures can lead to unwanted aromas and excessive acid production.
- Relative humidity (RH%): Ideally maintained between 50% and 90%.
- Carbon source: Lactic acid bacteria (LAB) and yeast metabolise monosaccharides and disaccharides.
- Sugar level: Optimal range is 2.0–10.0%. Higher levels can hinder microbial activity due to osmotic pressure. Residual unfermented sugars are necessary during baking for proper crust colour development.
- Salt level: Up to 2.5%. Higher levels impose significant osmotic stress on yeast cells.
- Water content: Ideal absorption levels of 50.0% or higher, based on flour weight. Excessive water leads to faster and uncontrollable yeast activity.
- Yeast/LAB levels: Higher yeast/LAB levels shorten the total fermentation time required to mature the dough.

3.2 Yeasts in the production process

So, how are the above factors incorporated in the bread making process? The procedure begins with the mixing of the flour with warm water and a small amount of sugar to provide initial food to activate

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the yeast. When yeast is activated, the fermentation is initiated. Kneading of the dough allows the development of gluten, letting it to trap carbon dioxide efficiently. Thus, at this stage yeast and other ingredients are distributed evenly throughout the dough. Proofing begins after kneading where the dough is left to ferment in a warm, humid environment. During this proofing stage, yeast ferments sugars, producing gas CO2 and developing the flavour of the bread. Once the dough has doubled in size, it is shaped into loaves or other desired forms. The shaping process redistributes yeast and allows for further gluten development. After the dough is placed in the oven, the yeast continues to generate carbon dioxide (CO2) until it is deactivated by the heat. The trapped gas expands, leading to further rising of the dough. Additionally, the heat alters the proteins, establishing the structure of the bread.

Yeast and fermentation are integral components of the intricate process of bread making, offering a plethora of advantages that greatly improve the quality, flavour, and consistency of bread. These benefits have been acknowledged for centuries, and contemporary scientific research continues to explore and elucidate the underlying mechanisms behind them.

As previously mentioned, yeast and fermentation improves texture and volume of the bread by generating carbon dioxide gas, which becomes trapped in the dough, causing it to expand and consequently creating a light, airy texture in the final bread product. Fermentation also enhances gluten development, resulting in a stronger gluten network that can better retain gas bubbles, leading to increased loaf volume and a softer crumb.

In addition, the aroma and enhancement of the flavour are by products of the fermentation. Fermentation produces various flavour compounds, including alcohols, acids, esters, and aldehydes, which contribute to the characteristic aroma and taste of bread. Organic acids, such as acetic acid and lactic acid, contribute to the zesty flavour of sourdough bread, while alcohols and esters impart fruity and floral aromas.

Another worth mentioning benefit of this process is the extension of the shelf life of the product. Acetic acid and other organic acids

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produced during fermentation act as natural preservatives, inhibiting the growth of spoilage microorganisms and extending the shelf life of bread. Fermentation also lowers the pH of the dough, creating an environment that is less favourable for the growth of pathogenic bacteria, further enhancing bread's microbial stability.

Furthermore, the nutritional profile of bread is improved as during fermentation procedure complex carbohydrates and proteins are broken down into simpler, more digestible forms, enhancing the bioavailability of nutrients in bread. The fermentation of whole grain flour by sourdough cultures has been demonstrated to boost the levels of bioactive compounds, such as antioxidants and phenolic compounds, which could potentially lead to health benefits including improved antioxidant activity, anti-inflammatory effects, and potential protection against chronic diseases such as cardiovascular disease and certain types of cancer.

Fermentation process is able to result in reduced phytate content. This is possible as phytate, a natural compound found in grains, has the ability to bind to minerals, thereby decreasing their absorption in the body. Fermentation by yeast can diminish the phytate content of bread, thereby increasing the availability of minerals.

During fermentation, both yeast and lactic acid bacteria secrete enzymes that catalyse the hydrolysis of gluten proteins present in the dough. This enzymatic activity can potentially break down the specific gluten proteins responsible for triggering immune responses in individuals with gluten sensitivity. By breaking down these gluten proteins into smaller peptides, fermentation may reduce the immunogenicity of gluten, making it more tolerable for individuals with gluten-related disorders such as celiac disease or non-celiac gluten sensitivity. This process is significant as it can potentially relieve symptoms experienced by those sensitive to gluten, offering them an option to enjoy bread products without adverse effects. However, it's essential to note that the degree of gluten hydrolysis during fermentation can vary depending on factors such as fermentation time, temperature, and the specific strains of yeast and bacteria involved.

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To sum up, yeast and fermentation are the dynamic duo behind the art of bread making. Yeast, a versatile microorganism, plays a crucial role in leavening dough, developing flavours, and contributing to gluten formation, making it an indispensable ingredient in the baker's toolkit. Through its metabolic activities, fermentation transforms simple ingredients into a culinary masterpiece, enhancing the texture, flavour, and nutritional quality of bread. Also by understanding the different types of yeast and their roles empowers bakers to experiment with various bread-making techniques and create delicious bread tailored to their preferences. Harnessing the benefits of yeast and fermentation, bakers can produce bread with superior taste, texture, and health benefits, deepening appreciation for this ancient craft and its biochemical processes.

Module 4. Dough and bread-making techniques: diverse menus and specialty breads in different cultures

Bread eating dates back to ancient times. In advanced ancient civilizations grain was ground in stone mills, then kneaded with water and salt, sometimes with leaven, then shaped into a pie or loaf and baked over an open fire or in an oven. We have records of bread making in Egypt many centuries before Christ, as well as from Greece and England during the same period.

Thanks to rapid mechanisation, baking technology saw great modernization in both Europe and America. Thanks to new scientific discoveries in agriculture, microbiology and baking technology, industrial production was able to produce affordable white bread for all social classes.

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4.1. History of bread-making

4.1.1. After the industrial revolution

Thanks to rapid mechanisation, baking technology saw great modernization in both Europe and America. Machine-driven roller mills, industrial wood-fired stoves, steam and gas ovens came into general use.

In other parts of the world – like Asia and Africa - experienced a much slower pace of development, thus traditional baking processes persisted up to the present day even in industrial production.

4.1.2. Present day technologies

Starting in the second half of the 20th century, thanks to new scientific discoveries in agriculture, microbiology and baking technology, industrial production was able to produce affordable white bread for all social classes. Thanks to selective breeding and greater yield from grain hybrids, the price of grain began to fall rapidly across Europe. In post-World War II Europe, white bread was no longer the privilege of the wealthy.

From one of the symbols of prosperity, white bread became a daily staple for most Europeans. At the same time, in Scandinavia, in Asia and other places, bread is still made from barley, oats, rice and pseudo-grains instead of wheat.

Nowadays, especially in mass production, the type of bread in a given culture or country is determined mainly by the locally produced grain variety. While wheat is the most common cereal in Central and Southern Europe, in the northern countries most breads are made from rye, barley and oats.

4.2. Grains and baking processes

4.2.1. Grains and pseudo-grains

As mentioned before, **wheat** is the dominant type of grain in Europe. In addition, there are significant croplands of barley, rye and oats in Central and Northern Europe. At the same time, bread can be made

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from corn, rice, or pseudo-grains, such as millet, buckwheat and chickpeas.

4.2.2. Grinding procedures, flour types

In order to make a dough with the right texture, and consequently a good-tasting bread, the grain must be subjected to some form of **mechanical treatment**. It can be ground or crushed, and then the grain needs to be sifted to make flour of appropriate fineness for dough-making. After conditioning and being enhanced with possible additives, flour is further processed into different types available on the market.

Depending on the ingredients, flour may receive a **sorting number**. By ingredients we refer to the parts of the grain and to what proportion these are in the flour. The numbering differs from country to country. For instance in Hungary fine flour is categorised as BL55, while in Germany the code is 550; in the same manner white bread flour receives a BL80 number in Hungary but 1050 in Austria. Greater the number, the higher the ash content in the flour. Likewise the more grain parts a given type of flour contains, the darker and grainier it appears.

Another defining character of a flour is the amount and composition of **wheat glutens** it contains, which signifies the “strength” of the flour. Marking of gluten content is common in Europe, in fact it’s mandatory in several countries. The primary objective of the classification is not to provide information in regards to gluten sensitivity, but to indicate whether the flour is suitable for biscuit or bread making.

4.2.3. Baking and preparation methods

In the course of the bread-making process, the dough is subjected to various mechanical and chemical processes. Dough is created when flour meets water, salt, additives, yeast or sourdough. First it is **mechanically processed**, followed by ripening, further kneading and stretching. During this process the dough’s structure undergoes an irreversible transformation.

The common characteristic of all breads is a large percentage of grain meal or flour. There are various forms of bread, which we will go into

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detail below. In general, most European breads have a slightly salty flavour, they are soft inside with a separate outer crust baked hard. Alternatively, bread can be baked without a crust, made to taste sweet, have stuffing inside or formed into a layered structure.

The bread becomes edible after a **heat treatment**. Depending on its type and method of preparation, the temperature can be as low as 100 degrees Celsius up to 400-450 degrees, baking can take place in an oven with a closed combustion chamber, in a cauldron, in an oven dug into the ground, in the hearth of a firestone affixed to its wall. In Europe, the most common baking technique is the use of a wood-gas- or electric-heated oven.

4.3. Types of bread dough

4.3.1. Bread made without fermentation

In Asia breads are typically made without fermentation, and are formed into **flatbread**. Bulking agents are generally not used during its preparation, and this flatbread variety is made from low gluten content flours or fake grains, which is virtually gluten-free. The texture is compact, the shape is generally round.

4.3.2 Bread made with fermentation and bulking agents

Throughout Europe breads take the form of **loaf**, but flatbreads like pita or pizza are also popular. These all employ bulking agents and fermentation. In Arabic and Indian cultures fermentation is also common for flatbread and pie.

Fermentation can be achieved by natural leavening, or by using different yeasts, which are essentially lactic acid-producing bacteria. As described in module 3, these form gases, which are released inside the dough, and are trapped by the gluten net. As a result, the baking dough rises and becomes bubbly. During fermentation, very important and beneficial organic changes take place in the flour, additional flavour and aroma substances are also released. As a result, bread not only increases in volume, but also develops its characteristic flavour in the process.

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Thanks to artisanal baking technologies gaining ground in recent decades, more and more bakeries are using **natural leavening agents** in place of conventional yeast. Sourdough is a material brought to life from microscopic fungi and bacteria living on the outer layers of the grain, it is then cultured using a strict technological procedure and kept in constant preservation during its lifetime. Under skilled hands, natural sourdough can be used to create exciting shapes, textures and flavours.

Finally, some countries have a tradition of making bread using **baking powder**, and in other places large-scale production may even employ enzymes in the course of bread production. Of all these ripening ingredients, natural sourdough and baker's yeast are considered the most appropriate excipients.

As a point of interest, in some regions of Hungary in the 18th and 19th centuries, before the widespread use of yeast, **acidified wheat bran** was also used as a bulking agent when making bread.

4.4. The technique of making dough

4.4.1. Compilation

Flour, water, yeast and salt are considered the most basic ingredients for bread dough in Europe.

After mixing and kneading the ingredients listed above, they gradually lose their original properties and become homogeneous, creating what we call bread dough.

4.4.2 Fermentation

The process of fermentation in the assembled bread dough is principally induced by **yeast or sourdough**. This process takes time: more or less depending on the ingredients used and the circumstances. Bread dough in industrial production is typically ready for shaping in 30-120 minutes, on the other hand, using extended fermentation, the bread dough could take as long as 24-48 hours before it is ready to be formed.

We must remember that bread dough is a **living substance**! Fermentation is the result of the processes that are not visible to the

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naked eye. The work of bacteria and yeast cultures create the texture, as well as the appropriate acidity and flavour.

Figure 7: The CO2 gets trapped in the dough, causing it to rise and creating air pockets that give bread its characteristic light and airy texture.

4.4.3. Shaping

When bread dough is leavened for the appropriate time, it becomes suitable for final shaping. In Europe, breads are typically shaped into round, short or long loaves, but in the case of pitas, pies and pizza, a flat dough is formed, then folded, and stretched before it is placed in the oven. There are bread types that get their final shape in a closed baking dish or in a proofing bowl, while others are placed on the table or a belt for pre-shaping, proofing and then for the last final shaping.

In the shaping process it is very important to pay attention to the dough's fragility. Dough subjected to overly strong or long mechanical impact may overheat, collapse, tear or in some cases over-ferment.

For **visually impaired bakers** shaping is one of the most suitable phases in the bread-making process. Hands receive plenty of **stimulation** to keep the dough's qualities under control at all times.

4.4.4 Sowing and baking the dough

The ready-made dough is usually placed in a preheated oven. For visually impaired bakers, we can provide a well-adapted working environment for the shaping process by using a special device to transfer the bread onto the baking tray, or by placing the dough in a

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smallish, not too deep, well-lit Hearth oven, otherwise by pushing the dough into a rotary kiln (an oven with a rotary cart). For visually impaired bakers steaming is always initiated behind a **closed oven door**. Adherence to the baking temperature and duration requires **great technological discipline**. Despite adhering to a detailed recipe, no two baking situations are the same, as many factors influence the baking time and temperature. The baking process must be supervised at all times. We check the doneness of the bread before taking them out of the oven.

4.4.5 Handling of finished bread

The baked bread needs to be placed on a grid storage shelf and kept in a dry, well-ventilated room until it's completely **cooled**. Inadequate cooling can cause bread to deform, especially when they are piled on top of each other, for example during transportation and packaging. Packaged or stored while still warm can also result in loss of texture. Some types of bread, such as pitas, are best eaten fresh, while traditional breads should be presented to consumers completely cold.

4.4.6 Environmental conditions

The bakery or any premise where bread making takes place can only be operated in possession of necessary **certificates**. These must comply with existing country-specific hygiene, electric shock protection, and food safety regulations. Strict and consistent compliance with occupational health and safety rules is extremely important when dealing with disabled workers.

Systematic ventilation and cleaning of the premises ensures a **germ-free** work area.

4.5. Bread in the world

4.5.1. White bread

White bread is the favourite variety in Central and Southern Europe. Loaves of various shapes are available with typically half to one kilogram in weight. Using fine white bread flour and either yeast or natural sourdough results in a bread that is **light and airy**, with evenly spaced holes, being soft inside and crispy outside.

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4.5.2. French-style breads

French-style bread usually has a crispy crust and a soft, airy interior. These breads are primarily made from wheat flour. The shapes are of a great variety, rivalled only by Italian breads. The best-known French bread type is the **baguette**, which is elongated, cylindrical, with pointed ends and a strongly ribbed top. In France baguettes are eaten for breakfast, lunch, and dinner and are often used to make sandwiches but are also enjoyed as a snack, with butter and jam or with cheese.

In addition to baguettes, traditional techniques of the peasant bread, i.e. **Pain de Campagne** is also popular, using long fermentation time, natural leavening, which allows for the development of the bread's refined taste and special texture. This type of bread is widely available in artisan bakeries worldwide.

Figure 8:Această imagine ilustrează faimoasa baghetă franceză. Acest tip de pâine este o formă alungită, cilindrică, cu capete ascuțite și un vârf puternic nervurat.

4.5.3. Breads from the Mediterranean

Just like the French, Italian baking tradition also exerts a great influence on international bread style. In addition to the more conventional **ciabatta** and **focaccia**, various local specialties make Italian baking culture all the more exciting.

Italian breads are famous for their simplicity and variety of flavours. **Madre sourdough**, used primarily for maturing pastries, began its world-conquering journey from Italy.

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Greek, Cypriot and Balkan cuisine also contribute to the international bread culture with their numerous specialties. Their common character is a flattened shape, much resembling pies, and tend to be made with some sort of filling. Fast baked **pita** bread is the perfect accompaniment to Mediterranean dishes.

Figure 9: This image illustrates a common Mediterranean bread type, the so-called Grissini, or Italian bread sticks. They are crunchy, rustic and stretched by hand to form the most beautiful homemade bread. In Italy, most restaurants and homes will serve grissini breadsticks on the table to enjoy as part of the main meal.

4.5.4 Northern European, Scandinavian breads

As we move north from the Mediterranean, the types of grain that can be grown shifts greatly. While wheat is the predominant type of cereal in Central and Southern Europe, north of Poland rye is the chief grain category. At the same time, in Northern Europe and the former Soviet member republics, dense, dark, whole-grain flours are the most popular for making bread, lending itself to denser loaves. Their common characteristic of Northern is an **acidic flavour**, crumbliness, moistness and compactness due to the **low yeast content**. These characteristics necessitate different shapes from that of white bread varieties in Central and South Europe, so in addition to smaller loaves flat bread is also common.

The taste of Northern bread is unusual for most people, and for many, **dark bread** is still the sign of poverty. Even today, white bread represents the symbol of prosperity. At the same time, it is well known that whole grain bread is a more healthy option, at least in relation to white bread, which is made from refined flour. In developed countries

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more and more people eat consciously these days, and choose darker Scandinavian-type breads in their diet.

4.5.5 Asian and North African breads

Asia and Africa comprise many cultural regions, which is also reflected in their food diversity. It is therefore difficult to generalise about Asian or African bread types. However, Asian and African cuisine have parallels in their bread-making traditions. To start with, European white bread is almost unknown on these continents. Moreover, although wheat flour is used in some North African countries, **stone-ground grains** with high ash content are preferred over refined white flour. Another common feature of African and Asian bread culture - with the exception of Morocco – is that almost all bread is made to a **roundel shape**.

4.6. Practical recommendations

- For visually impaired bakers steaming is always initiated behind a closed oven door. Adherence to the baking temperature and duration requires great technological discipline.
- Strict and consistent compliance with occupational health and safety rules is extremely important when dealing with workers with disabilities. Systematic ventilation and cleaning of the premises ensures a germ-free work area.
- In the shaping process it is very important to pay attention to the dough's fragility.
- For visually impaired bakers shaping is one of the most suitable phases in the bread-making process. Hands receive plenty of stimulation to keep the dough's qualities under control at all times.

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Module 5. Baking for dietary restrictions

The following module covers the science of baking for different needs, exploring ingredient substitutions and recipe adaptations to create delicious alternatives of bakery products without sacrificing flavour or texture. From replacement flours to dairy and egg substitutes, we will examine the complexities of baking for dietary restrictions and at the same time ensure that bakers will get a clear picture of the products they may use in order to prepare bread and pastries suitable for various needs.

5.1 Dietary restrictions and food allergies

With the rising awareness of food allergies, special caution should be exercised when baking foods for people with dietary restrictions. First of all, it should be made clear that while certain food ingredients are perfectly safe for some people, the same might be anything but healthy and even dangerous for others. For instance, gluten, a protein found in wheat, barley, and rye, is safe for most people but can cause severe health issues for those with **celiac disease** or **gluten sensitivity**. Similarly, lactose, the sugar found in milk, is tolerated by many but can lead to digestive problems for **lactose-intolerant** people. Other than health considerations, some dietary restrictions are influenced by **religious beliefs**. For example, Muslims must avoid alcohol, which is present in some bakery products, and pork, while Jews following kosher dietary laws also have specific ingredient and preparation requirements. Usually, when we refer to healthy food in the baking industry it is understood that the final products are high in nutrients, low in calories and with little or no sugar, white flour, lactose etc.

In this respect, the bakers take the main role when developing and baking healthier versions of popular items, which can be both delicious and safe to eat by customers. Baking is about understanding the nuanced interplay of ingredients and techniques, not just following recipes. With a mindful approach, we will explore the intricacies of substitutions and adapting recipes to different dietary needs without compromising taste or texture.

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5.2. Purpose of flour in the baking process and its alternatives

Creating bakery products without gluten is perhaps the biggest **challenge** for a baker since it is an important **structural component** of most baked goods. In such case, alternative flours come as a substitute. They are made out of a diverse group of ingredients that offer possibilities in baking, especially for those with dietary restrictions. When it is needed to exclude the traditional wheat flour, alternatives that include a **variety of grains** and seeds can be used.

Without adequate structure-building components, gluten-free baked goods can be overly crumbly, fail to hold together or have difficulty rising. In some cases, egg proteins found in certain quick breads can help compensate for this deficiency. To meet the need for structure in gluten-free baking, **vegetable gums** such as pectin are used. Commonly found in fruit jellies, preserves and purées, pectin can improve the texture and structure of gluten-free quick breads and batters. Powdered vegetable gums, such as xanthan gum, are also used for their structural benefits without adding sweetness or flavour to fruit products.

In addition, certain **starches**, such as corn starch, can partially replace gluten. Gelatinised corn starch, for example, forms a firm gel that helps to improve the structure of various baked goods. A variety of alternative flours and starches, including amaranth flour, arrowroot, buckwheat flour, chickpea flour, rice flour, fava bean flour, garfava flour (blend of chickpea and fava flours), cornmeal, potato starch, quinoa flour, sorghum flour, soya flour, tapioca flour and starch can be used to make gluten-free baked goods. However, as each flour or starch absorbs water differently, it is often necessary to **experiment and adjust** liquid proportions when substituting them in recipes.

Of these ingredients, rice flour, potato, tapioca and cornstarch are particularly suitable because they have relatively little flavour of their own and are therefore closest to white wheat flour.

It's important to note that nut flours should be avoided if **nut allergies** are an issue. For people with this kind of allergies or intolerances, alternatives such as sunflower seed flour, pumpkin seed flour and

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sesame seed flour are suitable options. Sunflower seed flour is made from finely ground sunflower seeds. It gives baked goods a mild, nutty flavour and a tender crumb. For a rich, earthy flavour and a boost of nutrients such as zinc and magnesium, try pumpkin seed flour. Ground sesame flour adds a nutty, crunchy flavour to bakery products and is a good source of calcium and iron.

Gluten-free products, even with the addition of structure-building ingredients, will always have a distinctly different texture than similar products made with wheat flour. The strength and elasticity of gluten can't be duplicated by other ingredients. In general, gluten-free baked goods have a more crumbly or grainy texture.

When baking with gluten-free products an important consideration is how these products are being separated, stored and the tools/utensils to be also maintained properly. Taking care of a **gluten-free environment** within a bakery that also handles gluten-containing products requires careful planning and execution to **avoid cross-contamination**, especially when visually impaired people are involved in the process. To achieve this, it is essential to establish specially allocated areas for gluten-free and gluten-containing products. These areas should be clearly marked using tactile markers such as raised borders or different textured surfaces, enabling visually impaired people to identify the products by touch. Storage should involve containers with braille/tactical labels for gluten-free ingredients, stored in distinct, consistently located sections for easy recognition. Dedicated tools and equipment for gluten-free baking are recommended. These tools should have tactile labels or different textured handles to distinguish them from those used for gluten-containing products. Complementing colour-coding with tactile labels, such as raised dots or patterns, will further assist visually impaired employees in differentiating between tools. Another recommendation is to provide tactile markers or different textured aprons for workers when switching between gluten-containing and gluten-free tasks.

5.3. Purpose of dairy and eggs in the baking process and their alternatives

Liquid dairy products such as milk, cream and yoghurt, play the role of a **moisturiser** in the baking process as well as adding flavour and

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richness, while eggs act more as a **thickening agent** and provide structural integrity by clotting their proteins during baking. Being such important ingredients in some recipes makes them difficult to be replaced by bakers, but a much needed step when cooking for people with dairy, lactose or egg intolerance and allergies. Apart from the health complications that might be caused by the consumption of these products, it is also possible to avoid them due to religious or life choices, which should also be respected.

The management of lactose intolerance and milk allergy often requires the complete avoidance of dairy ingredients. It is important to recognise that **lactose**, a sugar found in milk, poses a challenge for people with lactose intolerance, while milk allergies are reactions to the proteins in dairy products. Although there are many lactose-free dairy options, such as fluid milk, they are not sufficient for those with milk allergies as these products still contain **milk proteins**.

Fortunately, there are a number of milk substitutes available for people with milk allergies or lactose intolerance. **Soya milk** is one of the best known options, although it may not be suitable for those with soya allergies. Alternatively, commercial substitutes made from rice, almonds, quinoa, potatoes, sesame seeds and coconut offer a wide range of alternatives, some of which are available in both liquid and powder form. Replacing butter with **non-dairy margarines** is a viable solution in most recipes, but reading labels carefully is essential as some margarines can still contain milk protein.

When looking to reduce fat and cholesterol, replacing whole eggs with **egg whites** in doughs and batters is a practical strategy. In addition, egg white foam is often a suitable substitute in recipes that call for egg whites as a leavening agent. However, in recipes where eggs play a significant role, replacing whole eggs with egg whites can significantly alter the structure of the product. In cases of **egg allergy**, all egg products must be avoided. Starches, gums and proteins can be used to maintain binding properties. **Linseed**, rich in gums and soluble fibre, is a valuable egg substitute, with a suggested ratio of 1 tablespoon per 120 grams of flour in the recipe. **Tapioca** flour and arrowroot offer similar functionality. Alternatively, pureed **tofu or**

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banana can replace eggs in dough recipes, although people with soy allergies should avoid tofu.

5.4. Purpose of sugar and salt in the baking process and their alternatives

Sugars perform several important functions in baked goods, in addition to providing **sweetness and flavour**. They contribute to **tenderness** and texture, retain moisture to improve texture and shelf-life, and act as creaming agents with fats for leavening. Through their **browning properties**, sugars also contribute to the colour of the crust. When reducing sugar in a recipe, these functions must be compensated for by other ingredients. Refined white sugar can be replaced with **natural alternatives** such as honey, date sugar or maple sugar without changing the recipe. However, when liquid sugars such as honey or molasses are used, adjustments may be needed to account for their different properties. Sugar substitutes are used to reduce the amount of sugar, although they do not have the nutritional benefits of sugar and may have an undesirable aftertaste.

One common sugar substitute used in baking is **sucralose**, popular as sweetener. It is significantly sweeter than sugar and is often mixed with a bulking agent for baking purposes. Note that if you substitute granulated sucralose for sugar, you must substitute an equal volume, not an equal weight, because granulated sucralose is much lighter than sugar. For example one cup, around 240 ml, of granular sucralose weighs about 25 grams, a little less than 1 teaspoon.

Isomalt is another sugar substitute that can be used in some recipes. It has way less calories than the normal sugar and is used mainly for decorative purposes, but may not be suitable for all recipes due to its reduced sweetness. It has also been noted that some people experience potential digestive issues after its consumption.

The **salt** primary role in the baking process is multifaceted and sometimes essential to achieving optimal results. It serves as a flavour enhancer, in yeast-based doughs salt regulates the fermentation process by slowing down yeast activity, strengthens the gluten structure in dough, slows down enzyme activity and acts as a natural preservative. Some people need to avoid salt due to the

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negative effect it has on their blood pressure and in such cases what bakers can do is to simply reduce the amount of salt in their recipes. Care should also be taken when reducing the salt content of leavened breads, as one of the functions of salt is to **regulate yeast activity**.

5.5. Alternative recipes

❖ Gluten-free yeast bread recipe

Ingredients: 500g rice flour, 95g potato starch, 65g corn starch, 95g tapioca flour, 30g sugar, 75g non-fat milk solids, 15g xanthan gum, 15g salt, 15g instant yeast, 60g melted butter or margarine, 875g warm water, 10g distilled white vinegar, 190g lightly beaten egg whites.

Mixing:

1. Sift all the dry ingredients into the bowl of a mixer fitted with the paddle attachment.
2. Mix on low speed until the ingredients are uniformly blended. With the machine running on low speed, slowly add the melted butter, water, and vinegar.
3. Blend the ingredients together. Add the egg whites. Turn the machine to high speed and mix for 3 minutes. Note that the mixture forms a batter, not a dough.

Panning, proofing and baking:

1. Note that this batter does not have a fermentation period like regular yeast doughs. Grease loaf pans and dust with rice flour.
2. Fill pans half full of the batter. Proof until double in bulk.
3. Bake at 200°C for about 50 minutes, depending on the size of the loaves.

❖ Lactose-free creme caramel recipe

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Ingredients: 375g sugar, 60ml water, 500g eggs, 250g sugar, 2.5g salt, 15ml vanilla extract, 1250 soy milk.

Procedure:

1. Cook the first quantity of sugar with the water until it caramelizes.
2. Line the bottoms of twelve (180mL) custard ramekins with the hot caramel (Be sure the cups are clean and dry before adding the caramel.) Let cool.
3. Combine the eggs, sugar, salt, and vanilla in a mixing bowl. Mix thoroughly but do not whip.
4. Scald the soy milk in a double boiler or in a saucepan over low heat.
5. Gradually pour the milk into the egg mixture, stirring constantly.
6. Skim off all foam from the surface of the liquid.
7. Arrange the caramel-lined custard ramekins in a shallow baking pan.
8. Carefully pour the custard mixture into the ramekins.
9. Set the baking pan on the oven shelf. Pour enough hot water into the pan around the cups to reach about as high as the level of the custard mixture.
10. Bake at 165°C until set, about 45 minutes.
11. Carefully remove the custard from the oven and cool. Cover and refrigerate at least 12 hours to allow the caramel time to partly dissolve and form a sauce.

❖ No-sugar-added lemon cookies recipe

Ingredients: 225g soft butter, 36g granular sucralose, 3.5g salt, 14g grated lemon zest, 85g eggs, 10g vanilla, 450g pastry flour, 11g baking powder.

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Mixing:

1. Combine the butter, sucralose, salt, and zest in the bowl of a mixer fitted with the paddle attachment. Cream until light, scraping down the bowl as necessary to make sure all ingredients are evenly blended. (Note that the mixture will not cream as well as butter and sugar.)
2. Add the eggs a little at a time; mix until each addition is completely absorbed before adding more.
3. Blend in the vanilla.
4. Sift together the flour and baking powder. Add to the mixing bowl and mix at low speed until evenly blended and smooth.

Make up:

1. Divide the dough into approximately 230g parts.
2. Roll each into a cylinder 1 in (2.5 cm) thick. Wrap each tightly in plastic film and refrigerate for several hours or overnight.
3. Slice 1/4 in. (6 mm) thick. Bake on parchment-lined sheet pans.

Baking: 160°C, about 10 minutes

❖ Almond flour crackers

Ingredients: 2 cups almond flour, 2 tablespoons ground flaxseed, 1 teaspoon sea salt (plus extra for sprinkling), 1 tablespoon dried oregano, 1 tablespoon melted coconut oil, 1 large egg or flax egg for a vegan option (flax egg - 1 tablespoon ground flaxseed mixed with 3 tablespoons water), 1-2 tablespoons water if needed

Procedure:

1. Preheat the oven - preheat your oven to 180°C. Line a baking sheet with parchment paper.

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2. Mix dry ingredients: In a large bowl, combine the almond flour, ground flaxseed, sea salt, and the oregano

3. Add wet ingredients - add the coconut oil and egg (or flax egg) to the dry ingredients. Mix until a dough forms. If the dough is too crumbly, add water a tablespoon at a time until it comes together.

4. Roll out the dough - place the dough between two sheets of parchment paper. Roll it out to about 3/7 centimetres thickness. The thinner you roll the dough, the crispier the crackers will be.

5. Cut the crackers - remove the top parchment paper. Use a pizza cutter or a sharp knife to cut the dough into desired shapes (squares, rectangles, stars, hearts etc.). You can also use cookie cutters for fun shapes. Carefully transfer the parchment paper with the cut dough onto the baking sheet.

6. Add salt - sprinkle a bit of sea salt over the top of the dough for extra flavour.

7. Bake - bake in the preheated oven for 12-15 minutes, or until the edges are golden brown. Keep an eye on them to prevent burning.

8. Cool and break - allow the crackers to cool on the baking sheet for a few minutes before transferring them to a wire rack to cool completely. Once cooled, break the crackers along the scored lines.

9. Store - store the crackers in an airtight container at room temperature for up to a week.

❖ Gluten-free bread with cottage cheese

Ingredients: 400 grams brown rice flour, 600 grams gluten-free all-purpose flour (a blend of rice flour, tapioca starch, and potato starch), 1 tablespoon xanthan gum (to improve the structure of the dough), 30 grams dry yeast (or 30 grams baking soda, or 150 grams gluten-free sourdough starter), 10 grams Himalayan salt, 200 gluten-free oat bran or 200 grams gluten-free quinoa flakes, 1 egg, 400 grams yoghourt

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(or lactose-free yoghourt for a lactose-free version),100 grams cottage cheese (or lactose-free cottage cheese), 10 grams sunflower seeds, 20 grams flax seeds, 20 grams sesame seeds, 30 grams hulled sesame seeds, Savory herb (upon preference) to taste, 1 teaspoon garlic powder, 400 (or more if needed) millilitres warm water (around 40°C)

Procedure:

1. Activate the yeast (if using yeast) - in a small bowl, mix the warm water and yeast. Stir well and leave in a warm place for about 5-10 minutes until the mixture starts to foam.
2. Prepare the dry ingredients in a large bowl, mix the brown rice flour, gluten-free all-purpose flour, xanthan gum, gluten-free oat bran (or quinoa flakes), Himalayan salt, savoury, and garlic powder.
3. Mix the wet ingredients - in another bowl, beat the egg, add the yoghurt, and cottage cheese. Mix well.
4. Combine everything - add the wet ingredients and the activated yeast (if using yeast) to the dry ingredients. Mix well with a mixer or spoon until you get a smooth dough. If using baking soda, add it at this point and mix quickly.
5. Add the seeds - add the sunflower seeds, flax seeds, sesame seeds, and hulled sesame seeds to the dough and mix until evenly distributed.
6. Shape the bread - grease a bread pan or baking tray and transfer the dough into it. Add garlic powder and savoury herb then smooth the surface.
7. Proofing (if using yeast or sourdough starter): Cover the dough with a clean cloth and leave it in a warm place for about 30-45 minutes until it doubles in size. If using baking soda, skip this step and proceed directly to baking.

Baking and cooling

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1. Preheat the oven to 180°C. Bake the bread for about 40-50 minutes, or until it turns golden brown and sounds hollow when tapped on the crust.
2. Cooling - remove the bread from the oven and let it cool completely on a wire rack before slicing.

Module 6. The bakery workshop: work safety and HACCP regulations

In this final chapter of the first section of the manual, the topic of safety in the workplace will be addressed, with a specific focus on visually impaired persons entering the bakery sector. The aim is to provide future bakery assistants with a general understanding of what are the legislative and behavioural regulations regarding safety in the food sector. They will be provided with useful elements for creating a risk-averse environment, which implies an in-depth knowledge of the HACCP (Hazard Analysis Critical Control Point) system, made mandatory by European legislation. The HACCP system, recognised worldwide and regulated by the EU through EC Regulation 852/2004, establishes a framework for the identification and control of food safety hazards to ensure high standards of hygiene and safety.

In the bakery sector, ensuring safety involves not only the adoption of collaborative practices to ensure a safe and efficient working environment for all parties involved, but also compliance with the maximum food safety conditions of the food production processes. It would be beneficial for visually impaired bakery assistants to receive specific training and use adaptive tools and technologies to move safely in the work environment, ensuring both personal safety and the safety of the food they handle.

6.1 Food hygiene legislation: the HACCP System

In the context of food safety, it is important to mention the HACCP system (Hazard Analysis Critical Control Point), i.e. a food control system introduced to protect and guarantee the **safety and hygiene**

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of services and food goods for food production, distribution and serving. The principles of HACCP are recognised **globally** and approved by international organisations such as the World Health Organisation and the Food and Agriculture Organisation. The European Union has regulated the implementation of the HACCP system as well as food safety standards at European level. However, it should be noted that the implementation of the HACCP system may vary between member states. Indeed, the EU has adopted the principles of the HACCP system in its general food safety framework through European Regulation EC 852/2004 on general food law. This allows for the verification of production processes with a view to guaranteeing the highest standards of hygiene and food safety for consumers. It should be noted that while these regulations have been adopted at European level, there may be some variation in the implementation specifications at the national level. While some Member States require the use of HACCP for all food businesses, in others it may only be mandatory for certain sectors. At the national level, National Security Agencies oversee the implementation of HACCP and ensure compliance with the respective regulations.

As previously stated, HACCP is a “tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-point testing” (HACCP Guidance document). The **food safety hazards** are multiple and range from microbial hazards (e.g. pathogenic bacteria, spoilage bacteria, viral contamination, moulds, yeasts and algae, and parasites) to chemical and physical hazards, such as physical contamination (broken utensils or parts), chemical contamination (environmental pollutants, production aids, compounds formed during cooking, naturally occurring toxins), allergenic contamination, cross-contamination, fraud and tampering.

The HACCP approach to hazard analysis is based on **7 principles**:

1. Conduct a hazard analysis;

2. Determine the Critical Control Points (CCP);

3. Establish critical limit(s);

4. Establish a system to monitor control of the CCP;

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5. Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control;

6. Establish procedures for verification to confirm that the HACCP system is working effectively;

7. Establish documentation concerning all procedures and records appropriate to these principles and their application.

It would be beneficial for future bakery assistants, who will have to work in contact with food, to be informed about which certificates and standards they will have to possess. It would therefore be advisable to ascertain whether **HACCP certification** is a mandatory requirement in one's own country. As we have seen, this is **regulated at national level** through courses and certifications.

6.2 Safety at work in the bakery sector: Safety recommendations

It is advisable for visually impaired workers who become bakery assistants to pay attention to various aspects in order to ensure their safety and efficiency in their work. Firstly, as we explained in the previous section on HACCP, it is suggested following all the food hygiene and safety **procedures** specific to food workers, as well as receiving adequate and specific training on **equipment**, baking processes and safety procedures within the bakery.

It would be advisable for a bakery assistant to consider the importance of complying with hygiene and health regulations, as these are essential for ensuring food safety and preventing contamination. It is also important to ensure that surfaces, equipment and utensils are regularly cleaned. It is indeed advisable to **sanitise** and disinfect work areas with products suitable for food use. In order to have as clean and sterile an environment as possible, staff should dress appropriately (e.g. wear non-slip shoes) and use clean **protective clothing**, such as aprons, hats or hair nets. In order to have appropriate **food handling** behaviour, it is necessary for workers to wash their hands thoroughly before starting work, after using the toilet, and after touching contaminated materials. If necessary (e.g. in the case of injuries) workers are encouraged to use disposable gloves.

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Regarding food, it is necessary to know how to **store** food, especially perishable food (properly closed and labelled containers, appropriate temperatures, cooling), what the rules are for stock rotation, to use older ingredients first, and in general, how to protect food from physical, chemical and biological **contamination**. Finally, employees should know how to **dispose** of food waste, to avoid contamination and infestation. Implementing and maintaining these standards is essential to ensure a safe and hygienic working environment, protecting both workers and end consumers.

Last but not least, it is good to remember that people working in bakeries are exposed to very **high health hazards**: 'bakers have an occupational injury incidence rate 18.2 times higher than average' (Blythe, 2022). It is important for a worker in this sector to be aware of possible health hazards so that he or she can recognise them and act promptly. Common risks include dust-related injuries (asthma and contact with flour), occupational dermatitis, exposure to harmful substances, slips and accidents related to handling heavy loads and operating machinery.

In addition to the health and hygiene aspects, it would also be of fundamental importance for bakery assistants to receive an **orientation to the work environment**, which could include an overview of the laboratory space and a review of the location of tools and equipment.

The bakery must become an accessible, inclusive and risk-free place for people with visual impairments. It is suggested to adapt the equipment used with tools that provide **tactile or audible signals**, which would help workers easily recognise their function. It would be recommendable, for instance, to consider the use of tactile signs and markings on the floor to indicate areas of potential danger, such as ovens or moving machinery, that could pose a serious hazard to blind or visually impaired people.

It would be beneficial to consider the use of **assistive technology** as well, such as devices that provide verbal instructions, scales with voice output and timers with audible alerts.

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Organisation within the bakery becomes crucial, as does collaboration between colleagues, organising **practice and exchange moments**, where the work of the team can receive regular **supervision** and constructive **feedback** to continuously improve working practices and safety. The management of equipment and tools should be organised together with the team, so that everyone can ensure that tools are stored neatly and in the same place, which would facilitate use and help to reduce the risk of accidents. The work environment will need **continuous adaptation**, constantly assessing and adapting to the needs of workers to ensure that they are always safe and efficient, as well as inclusive.

Implementing these measures will help create a safe, inclusive and productive working environment for visually impaired or blind workers in a bakery.

6.3 Best practices

❖ The story of Samantha Meddaugh

A blind professional baker, who recounts her experiences and challenges in the article 'A Blind Baker's Perspective' to continue practising her passion after losing her sight due to type 1 diabetes. Meddaugh describes her rehabilitation at the Colorado Centre for the Blind, the adaptive techniques used in the kitchen, her experiences working in a restaurant and a bakery, and the difficulties she encountered due to discrimination.

The full article can be read here:
https://www.aromaticapoetica.com/2019/12/11/a-blind-bakers-perspective-samantha-meddaugh-interview-plus-holiday-recipe/

❖ The story of Ernawati Fauzana

A visually impaired woman who discovered that visual impairment is not a barrier to realising her dreams. After trying different jobs, she quit her job in 2016 and travelled to the UK, where she met independent and successful blind people. Inspired by this experience, Erna decided to pursue her dream of becoming a chef. In 2018, she met Aaron Yeoh, founder of Fortitude Culina, a social enterprise that supports blind people in the culinary industry. With the support of

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Fortitude Culina, Erna is now a chef specialising in Malaysian and Indonesian cuisines.

The full article can be read here:
https://pride.kindness.sg/through-eyes-visually-impaired-chef/

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SECTION II

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INTRODUCTION

Welcome to **Section 2** of the VIPs VIBES Handbook, a resource crafted to guide bakery owners, managers and employees in fostering an inclusive and accessible workplace for Visually Impaired Persons (VIPs). In this section, we delve into the essential strategies, skills, and knowledge needed to transform your bakery into a welcoming environment where everyone can thrive.

Imagine a bakery where every team member, regardless of their visual ability, can contribute their talents and skills seamlessly. This vision is achievable through the introduction of the **mentor** - a dedicated professional whose mission is to facilitate the professional inclusion of VIPs. Mentors play a pivotal role in ensuring that VIPs feel supported, understood, and empowered in their workplace.

For bakery owners and managers, this section offers practical advice on adapting both the social and physical environment of your bakery. Learn about the legislation on inclusion and diversity of persons with disabilities in companies and the national contexts of some European countries, find what it means to be visually impaired and what such an impairment involves, including the social environment, discrimination in the workplace and how to contrast it.

Employees will find valuable insights on how to interact effectively with VIPs, ensuring that communication is always clear, respectful and supportive and how to adjust the physical environment to respect safety standards and accessibility measures.

By understanding the unique challenges VIPs face and learning how to address them, you can help create a more cohesive and inclusive team. By embracing the guidance provided in this section, your bakery can become a beacon of inclusivity, where every employee, regardless of visual impairment, is valued and empowered. Let’s take this journey together to build a bakery that truly represents the spirit of community and inclusiveness

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Module 1. Legislation on inclusion and diversity of persons with disabilities in companies: national contexts

"Persons with disabilities have the right to have good conditions in the workplace, to live independently, to have equal opportunities, to participate fully in the life of their community. All have a right to a life without barriers. And it is our obligation, as a community, to ensure their full participation in society, on an equal basis with others."

President of the European Commission, Von Der Leyen

The values of equality, social fairness, freedom, democracy and human rights are key aspects of the European Union, and they serve as a compass for all the actions undertaken by the member states. The European Disability Strategy 2010-2020 marked a breakthrough in setting the minimum standards for the rights of persons with disabilities, which continues now through the new strategy for the Rights of Persons with Disabilities 2021-2030. However, persons with disabilities still face considerable barriers to access to healthcare, education, employment, recreational activities, and participation in political life (Eurobarometer, 2024).

This chapter aims to provide an overview of the related legislation on the inclusion and diversity of persons with disabilities in terms of employment in Romania, Bulgaria, Hungary, Italy and Cyprus and to present good practices from the countries mentioned.

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1.1. National cases

1.1.1 The Case of Romania

In Romania, a person with a disability is defined under Law No. 448/2006 as someone who has an impairment that leads to significant limitations in activity and participation, reflecting a negative interaction between the individual and their environment. This legislation aligns with the International Classification of Functioning, Disability, and Health (ICF) adopted by the World Health Organization.

Key Legislation and Policies for Inclusion and Diversity:

- Law No. 448/2006: This law ensures the rights of people with disabilities across various domains, including health, education, employment, social services, and accessibility. It mandates reasonable workplace accommodations and promotes social inclusion through various support measures such as professional training and rehabilitation services.
- Law No. 145/2020: This law strengthens workplace protections by requiring employers to make reasonable adjustments to accommodate employees with disabilities.

Action Plans for Job Market Inclusion:

- Employment Quota System: It imposes fines on employers who fail to adapt workplaces to meet these requirements. The legislation also introduces employment quotas for organisations with 50 or more employees, obliging them to ensure that 4% of their workforce comprises individuals with disabilities. Non-compliant employers must pay fines or contribute to a state fund . Specifically, employers must pay a sum equivalent to the medium gross salary multiplied by the number of positions they should have filled with individuals with disabilities but did not.
- Professional Training and Support: The legislation promotes vocational training and professional rehabilitation programs to enhance the employability of people with disabilities. This includes the adaptation of workplaces and the provision of assistive technologies to support their integration into the workforce.

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- Social and Economic Incentives: Various fiscal benefits and incentives are provided to organisations that employ individuals with disabilities. These measures aim to reduce the financial burden on employers and encourage the creation of an inclusive work environment.

Challenges and Progress:

Despite these legislative frameworks, challenges remain in achieving full inclusion. Many employers opt to pay fines rather than meet the employment quotas due to prevailing discriminatory attitudes and misconceptions about the capabilities of people with disabilities. However, initiatives such as job fairs and disability summits are making strides towards changing perceptions and fostering a more inclusive job market (Social Connectedness).

Overall, Romania's legislative efforts demonstrate a commitment to the inclusion and diversity of persons with disabilities, particularly within the job market. However, ongoing efforts are needed to ensure these laws translate into tangible improvements in employment opportunities for people with disabilities.

Romania does not have a strategy especially for people with disabilities, but it has a strategy known as “An Equitable Romania” for the period 2021-2027, aiming to ensure full and effective participation in all areas of life, focusing on eight priority areas:

- Accessibility and Mobility: Enhancing physical access to buildings, transportation, and digital services.
- Protection of Rights: Strengthening legal frameworks to protect the rights of persons with disabilities.
- Employment: Promoting job opportunities and ensuring reasonable workplace accommodations.
- Social Protection and Rehabilitation: Providing comprehensive social services and rehabilitation programs.
- Independent Living and Community Inclusion: Supporting independent living and integrating persons with disabilities into the community.
- Education: Ensuring inclusive education at all levels.

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- Health: Improving access to healthcare services tailored to the needs of persons with disabilities.
- Political and Public Participation: Encouraging active participation in political and public life.

This strategy is part of Romania's commitment to implement the UN Convention on the Rights of Persons with Disabilities, which the country ratified through Law No. 221/2010. The strategy also aligns with various European Union directives and international agreements to promote inclusivity and equality (Studio Interrobang) (AccessibleEU) (FYC Vidin).

1.1.2 The Case of Bulgaria

The up-to-date and widely used definition for a person with disability in Bulgaria is based on the description by the World Health Organisation (WHO). According to the Bulgarian „Law for People with Disabilities" (in force from 1 January 2019) "People with disabilities" are those with physical, mental, intellectual and sensory impairments, which in interaction with the environment could hinder their full and effective participation in public life. The same law defines "People with permanent disabilities" as: people with long-term physical, mental, intellectual or sensory impairments, which in interaction with the environment, could hinder their full and effective participation in public life, and to whom medical expertise has established the type and degree of disability or degree of permanently reduced working capacity 50 and over 50 percent.

These two descriptions are widely used by the experts from the health care, social and education sectors in Bulgaria and serve as a foundation for the provision of services and support to people with reduced abilities. In recent years, there is a clear trend to put the emphasis more on the abilities of the person, rather than on their functional limitations. This tendency reflects the way how PwDs are being supported, the social benefits they receive as well as the opportunities to participate in the public and professional life. When it comes to employment opportunities, both government and NGO sectors develop and implement various programmes to encourage

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people with disabilities to find suitable employment within mainstream companies and organisations, as well as to start their own businesses.

Rights of people with disabilities

The fundamental human rights of PwDs are guaranteed by the United Nations Convention on the “Rights of Persons with Disabilities”, ratified by the Bulgarian parliament on 26 January 2012. To ensure that the principles of the Convention are fully implemented in the country, the Bulgarian government adopted an Action Plan “For the implementation of the final recommendations to the republic of Bulgaria addressed by the UN committee on the rights of persons with disabilities (2021-2026)”. The implementation of the Action Plan aims to support the fulfilment of the commitments of the Republic of Bulgaria under the UN Convention, contributing to better protection and ensuring opportunities for active inclusion in public life.

Some of the measures foreseen especially in the employment domain are:

- Increasing the number of electronic services for jobseekers.
- Providing specialised labour mediation for persons with disabilities, including remote one.
- Development of the new services of the Employment Agency such as “Consultation and mentoring after starting work” and “Family labour consultant”.
- Expanding the scope of application of the “Standardised package” of services for persons with permanent disabilities.
- Modernisation of the adult education system through the development and introduction of new forms of education, including for persons with disabilities.

The full text of the Action Plan is available on the website of the Ministry of Labour and Social Affairs and can be accessed via: https://www.mlsp.government.bg/eng/strategic-documents

On a national level, the rights of people with disabilities are regulated by several laws as well as by-laws which are described below. The main legislative act regulating all matters related to people with

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disabilities is the “Law for People with Disabilities”. According to Art. 1. The law regulates the public relationships related to the exercising of the rights of people with disabilities in the Republic of Bulgaria. It also guarantees the rights of people with disabilities in a way that ensures respect for their human dignity and equal treatment in their personal, public and political lives, by applying an individual approach and individual needs assessment.

The Bulgarian policy for the rights of people with disabilities is implemented by the state and local authorities in cooperation with the national representative organisations of and for people with disabilities, the national representative organisations of employers and the national representative organisations of employees, which create conditions and assist in the implementation of programmes and projects in this field.

The employment rights of people with disabilities in Bulgaria are guaranteed in particular by the “Employment Promotion Act” (last amended at “amend. SG. 21/12 Mar 2021”). According to “Art. 17. (1) (amend. – SG 26/08) the persons who are looking for a job (job seekers) can use, according to this Act:

1. Information for announced job vacancies.
2. Information for employment promotion and employment security programmes and measures.
3. Mediation in providing information and placement.
4. Psychological counselling.
5. Vocational guidance.
6. Involvement in adult training.
7. (amend. – SG, 101/2015) motivation for active behaviour on the labour market and inclusion in employment and training programmes and measures.
8. Scholarships for training, travel and accommodation allowances for the period of training.

(2) (amend. – SG 26/08) According to this Act available to employers shall be the following:

1. Information for job seekers.

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2. Information for employment security and employment promotion programmes and measures.
3. Mediation in placement.
4. Inclusion in employment and training programmes and measures.
5. Incentives to maintain and/or increase employment.
6. Incentives for internship and/or apprenticeship.
7. Incentives to encourage territorial mobility of employed persons."

The law also contains measures for promotion of entrepreneurship among people with disabilities as per "Art. 47. (1) (amend. SG 26/03; amend. – SG 59/10) To a person or persons who are unemployed with a right to monetary indemnification and wish to start independently or together economic activity for production of commodities and/or services shall be granted, for the account of Fund "Unemployment" one-time cash resources upon approval of a business project by the division of the National Employment Agency and an application by the person to the division of the National Employment Agency stating that he wishes to receive one-time sum of money instead of monetary indemnification for unemployment under the conditions and by the order of the Code for obligatory public insurance." The full text of the above mentioned law can be found at: https://www.mlsp.government.bg/eng/legislation-4

If any of the rights of PwDs that are guaranteed by the laws are abused, there are a number of public institutions in Bulgaria, which can be contacted via submission of written request. For example, in case of discrimination on the ground of disability, the body which can be code in is the Commission for Protection against Discrimination - https://www.kzd-nondiscrimination.com/

All other issues related to the rights of people with disabilities, guaranteed by the Bulgarian legislation, the Bulgarian citizens may refer to the National Ombudsman at www.ombudsman.bg.

Active programmes and public bodies, supporting the employment of people with disabilities in Bulgaria

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In Bulgaria, several ongoing programmes aim to support the employment of people with disabilities. These initiatives, managed by various governmental and non-governmental organisations, seek to enhance the employability and inclusion of disabled people on the labour market.

The Bulgarian Employment Agency is a key institution, offering a range of specialised services such as:

- Specialised labour mediation, through dedicated case manager responsible for assisting unemployed people with disabilities to obtain individual package of services, with the final goal to find suitable work place for them.
- Consultation and mentoring, designed to help individuals integrate into the workplace. For instance, the "Consultation and Mentoring after Starting Work" programme provides continuous support to ensure successful employment transitions.
- "Family Labour Consultant" programme that offers guidance and resources to both employees and their families, addressing the unique challenges faced by disabled people in the labour market.

As an EU member state, Bulgaria benefits from the European Social Fund (ESF), which finances various programmes, raising employability and job retention of people with disabilities. These programmes include: vocational training for acquisition of specialised knowledge and skills, sought by the employers; soft skills development programmes; and job placement services, assisting people with disabilities acquire the necessary skills and qualifications for the open labour market.

The government has also implemented inclusive employment measures, expanding the scope of services and support packages for people with permanent disabilities. This includes modernising the adult education system to introduce new forms of accessible education and training such as: blended learning; distance education; job coaching; apprenticeships that are paid for everyone who takes part and meet the criteria.

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Collaboration with non-governmental organisations (NGOs) and social enterprises contributes significantly in creating better employment opportunities for people with disabilities. These organisations provide additional vocational training, support for starting small businesses, and job placement services. They work closely with mainstream companies to promote inclusive hiring practices and create a more inclusive work environment for people with disabilities.

Furthermore, the Bulgarian government and disability organisations provide guidelines and support for reasonable adaptations in the workplace. This includes adapting work environments, providing assistive technologies, and ensuring that communication methods are accessible. These adaptations are crucial for enabling people with disabilities to perform their jobs effectively and comfortably.

In addition to these programmes, Bulgaria's legislative framework supports the employment of people with disabilities through funding schemes for reasonable accommodations, quotas for the employment of disabled people for medium and large size enterprises, as well as the right to vocational rehabilitation and training. These measures and programmes that stimulate both people with disabilities and employers, are administered by The National Employment Agency, The Agency for People with Disabilities and The Agency for Social Assistance. On their websites the stakeholders can find up-to date information about the active programmes and calls for funding, meant for inclusive employment of people with disabilities

1.1.3 The Case of Hungary

In Hungary, a disabled worker is someone, who is to a significant extent or entirely not in possession of sensory (particularly sight, hearing), locomotor or intellectual functions, otherwise substantially restricted in communication and is thereby placed at a permanent disadvantage regarding active participation in social life.

The task of the rehabilitation authority is to act in the interest of disabled workers. The rehabilitation authority evaluates eligibility for financial benefits and helps to find suitable work for disabled workers.

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This organisation performs complex qualifications in order to establish the degree of employability: thereby categorising disabled persons as employable (with the help of rehabilitation) or unemployable (disabled).

Disabled worker benefits

In Hungary all seriously disabled persons over the age of 18 are entitled to disability allowance regardless of income.

Further benefits include:

- travel discount
- parking permit
- tax discount (disabled persons have the possibility to reduce their tax base, thereby reducing the amount of tax to be paid)
- five workdays of additional leave per year.

Employer obligations and benefits

In Hungary employers are obliged to pay a rehabilitation contribution when the number of employees exceeds 25, and the number of disabled workers does not reach 5 percent of all employees.

Accredited employers provide a sheltered workplace for their disabled employees, they can apply to take part in occupational rehabilitation. Accredited employers continue to operate under market conditions, but the state provides them with set financial support for the purpose of improving disabled workers' prospects on the labour market. In Hungary, approximately 30,000 employees with disabilities work for accredited employers.

1.1.4 The Case of Italy

In Italy, the law that historically protected people with disabilities is Law 104/92. However, there have been recent updates, the Council of Ministers had approved in 2023, in preliminary examination, two legislative decrees implementing Law no. 227 of 22 December 2021 for the reorganisation of the existing provisions on disability/invalidity, currently regulated by Law no. 104 1992. These laws provide for the

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protection of disabled people and the recognition of their condition and civil and social rights. In addition, they enshrine the right to independent living and full social and labour inclusion, respecting the principles of self-determination and non-discrimination (https://www.fiscoetasse.com/approfondimenti/15685-in-gazzetta-il-decreto-disabilita-che-modifica-la-legge-104.html)

In 2024, the Council of Ministers met and approved on 15 April a new legislative decree providing a new definition of the condition of disability. The text was published in the Official Gazette no. 111 of 14 May 2024. The updating of these regulations was necessary to clarify some issues and to be more in line with European regulations and the definition of disability provided by the UN guidelines.

With these new regulations, it is important to note that the definition of disability is being changed, definitively abandoning the obsolete term 'person with a disability' and using 'person with a disability', which refers to "those persons who are in a condition of permanent physical, mental, intellectual, neurodevelopmental or sensory impairment that, in interaction with barriers of a different nature, may hinder full and effective participation in the various contexts of life on an equal basis with others" (https://www.osservatoriomalattierare.it/news/invalidita-civile-esenzioni-e-diritti/20906-disabilita-il-nuovo-decreto-rivede-la-terminologia-e-le-procedure-di-valutazione-per-legge-104-e-invalidita-civile).

The new reference standards will then be as follows:

1. Legislative Decree 62 2024: multidimensional disability assessment and life project. This legislative decree focuses mainly on updating the definition of the condition of disability and the procedures for assessing this condition so as to ensure the preparation of an individual and customised life project for people with disabilities.
2. Decree on Essential Levels of Disability Benefits LEP. This decree (3 November 2023) regulates the establishment of the Cabina di regia for the determination of essential levels of services (LEP) in favour of persons with disabilities, in implementation of the enabling act 22 December 2021, no. 227.

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3. Disability Decree 62 2024 the amendments to 104 Law. This legislative decree amends several pre-existing Italian regulations concerning disability, social benefits, and regulations for the assistance and integration of persons with disabilities.

In Italy, from the point of view of employment protection for disabled people, reference should be made to Law No. 68 of 12 March 1999 ‘Rules for the right of disabled people to work’. This regulation was reformed by Legislative Decree no. 151/2015. This regulation protects the inclusion of persons with disabilities in the world of work and attempts to improve the employment system to facilitate the match between the organisational needs of the employer and the skills and abilities of the person with disabilities.

In addition, the Ministry's General Directorate for Active Employment Policies, on the subject of the employment of persons with disabilities, is responsible for the definition of the ‘Guidelines on the targeted employment of persons with disabilities’, adopted by Ministerial Decree No. 43 of 11 March 2022, in implementation of the provision of Article 1, of the aforementioned Legislative Decree No. 151 of 2015. This serves as an overall reference framework for companies and entities to ensure the correct fulfilment of the obligation to employ persons with disabilities.

Intesa Sanpaolo, in collaboration with the Office for Policies in favour of people with disabilities, has produced the Guide ‘The right words - Media and people with disabilities’, a guide aimed at those who have to relate to the issue of disability with fairness and respect. (Downloadable here https://disabilita.governo.it/media/1644/pdf-accessibile_le-parole-giuste-media-e-persone-con-disabilita.pdf).

In this manual we find the following **definition**:

“DISABLED: When talking about a person, it is not appropriate to mention his or her condition of disability, unless it is relevant to describe the facts. In that case, the best choice is to use language that mentions the person first and then the disability, not using the word ‘disabled’ as an adjective. then the disability by not using the word ‘disabled’ as an adjective to describe the person directly, better

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‘the writer with a disability’ instead of ‘the writer disabled’. The adjective disable in fact in Italian connotes a generic condition of non-ability that affects the person as a whole and not a condition that depends on the context in which the person finds himself. The expression ‘person with disabilities’ belongs to the official language of the UN Convention on the Rights of Persons with disabilities, which has the merit of putting the person in the foreground and of framing disability as a condition external to the person, also dependent on contextual factors. If you want to talk about the whole, consider using phrases such as ‘the movement of persons with disabilities’ instead of ‘the disabled”.

1.1.5 The Case of Cyprus

The last decade saw major improvements in the field of inclusion and diversity of persons with disabilities in Cyprus. The Republic of Cyprus ratified and incorporated into its national legislation, the UN Convention on the Rights of Persons with Disabilities, in 2011, by the approval of the Convention on the Rights of Persons with Disabilities and Related Issues (Ratification) Law of 2011. In 2012, The Ministers’ Council appointed the Department for Social Inclusion of Persons with Disabilities of the Ministry of Labour, Welfare and Social Insurances, as the focal point concerning its implementation.

According to the definition provided by the law “a person with disability” refers to a person who, according to the assessment by a special multidisciplinary committee, experiences any kind of impairment which causes permanent or long term physical or intellectual or mental restriction substantially reducing or excluding the possibility to find and maintain an appropriate employment.

The first National Disability Strategy 2018-2028 focuses on improving the quality of life of persons with disabilities, which builds upon the principles of the recommendations made to the Republic of Cyprus by the UN Convention on the Rights of Persons with Disabilities Committee, the European Disability Strategy 2010-2020 and the Council of Europe's Disability Strategy 2017-2023.

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Specifically, the actions addressed by the strategy are divided into 8 thematic areas including:

- Equality & Awareness,
- Accessibility in Physical Spaces and Buildings,
- Accessibility of Transportation,
- Information Accessibility
- Independent Living and Social Protection
- Education and Vocational Training
- Health and Rehabilitation
- Employment

In this framework, Cyprus, as many other EU member states, has proceeded to the adoption of a special quota law as a positive measure to enhance the accessibility of persons with disabilities in employment. Specifically, persons with disabilities who fulfil specific objective requirements are recruited in employment positions in the wider public sector at a quota of 10% of the number of vacancies.

In addition, the following actions have been adopted:

- Upgrade Vocational Training of Persons with Disabilities. It focuses on increasing vocational training, employment, and rehabilitation programs for people with disabilities.

- Upgrade Supported Employment. Promote the concept of job coaching to non-governmental organisations offering supported employment to persons with physical, mental, intellectual or sensory disability.

- Social Enterprises. Introduction of social enterprises in Cyprus to create new jobs in economically sustainable enterprises and to promote the employment of persons with disabilities in cooperation and with the support of persons without disabilities.

- Creation and Operation of Small Units for Self-Employment Purposes of Persons with Disabilities. Focusing on supporting persons with physical, sensory, mental or other disabilities, which cause them severe reduction of their possibility of employment in the open labour market and allow only the choice between a restricted circle of professions.

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Overall, developments regarding the inclusion of people with disabilities in the job market in Cyprus look very promising but more time and research are needed to evaluate their impact.

1.2. Best Practices

In the following section, good practices from the partner countries in regard to the inclusion and diversity of persons with disabilities in the field employment are presented:

Name of Good Practice	**Scheme for Supported Employment**
Country	**Cyprus**
Provider	Public Provider - Department Of Social Inclusion For Persons With Disability
Level (Regional, National)	National
Short Description	The Scheme provides support to certified non-governmental organisations which offer services of supported employment via the employment of a job coach, to persons with physical, mental, intellectual or sensory disability. The government provides funds up to €13.500 per year for each programme.

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Name of Good Practice	**Social Enterprises**
Country	**Romania**
Provider	Mix of non-governmental organisations (NGOs), foundations, and associations that focus on integrating people with disabilities into the workforce
Level (Regional, National)	National
Short Description	Social enterprises in Romania are businesses that aim to address social issues, including the integration of people with disabilities, by providing employment and training opportunities. They operate commercially but reinvest their profits to support social goals, such as economic empowerment and social inclusion. Restaurantul Social & Catering ASSOC has become a national success story and is now among the leading catering service providers in Baia Mare. Through this initiative, social inclusion has been demonstrated by employing people with disabilities in a protected and flexible work environment. It also showcases the value of the social economy by helping to self-finance social services through its public food service operations.

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Name of Good Practice	**Bake My Day Bakery**
Country	**Hungary**
Provider	Ministry of Human Resources and the National Center for Disability and Social Policy
Level (Regional, National)	Regional
Short Description	Bake My Day artisan bakery opened its doors in January 2018 in Budapest, they make their products with great care, without additives, using a natural process, and using quality ingredients.The company only employs people with disabilities, and several visually impaired people work among its employees.

Name of Good Practice	**Starting up and developing own business by people with disabilities**
Country	**Bulgaria**
Provider	Ministry of Labour and Social Policy - Agency for Persons with Disabilities
Level (Regional, National)	National

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Short Description	People with permanent disabilities in Bulgaria can receive grants of up to BGN 30,000 (15 000 EU) to start and develop their own small business under this project. The funding covers various expenses such as investment costs, establishment of new enterprises, construction and renovation works, equipment, and training. Applicants must meet specific eligibility criteria and adhere to certain obligations once funded. They need to be 50% or more disabled and not involved as owners or partners in another company. After completing the intended core activities, business owners have an obligation to actively work only in the businesses and in their best interest. One project funded under this initiative involved setting up an online store for art hobbies and sensory materials, receiving a grant of BGN 29,522.46.

Name of Good Practice	**Dialogue in the dark**
Country	**Italy**
Provider	Institute for the Blind of Milan
Level (Regional, National)	Regional

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Short Description	Dialogue in the Dark is an exhibition/pathway held at the Istituto dei Ciechi di Milano since 2005. It is a sensory experience in which visitors can immerse themselves in darkness by experiencing different opportunities such as a dinner or a tasting, to discover new dimensions, beyond the ordinary way of seeing the world.

Module 2. What it means to be visually impaired and what such an impairment involves

Understanding the diverse needs and experiences of people with visual impairments is essential for ensuring inclusivity at the workplace. Each person with visual impairment has **unique strengths**, weaknesses, and coping mechanisms. Whether born with a vision impairment or experiencing vision loss gradually, people may rely on various tools and strategies to navigate around their surroundings.

This module introduces different types of visual impairments and their effects, ranging from total blindness to conditions like central vision loss, peripheral vision loss, and colour blindness. We also discuss common challenges faced by visually impaired people and barriers they encounter in various environments.

In addition, we explore strategies for communication, workplace adaptation, and inclusive practices to promote the full participation of people with visual impairments in the bakery sector.

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2.1 Visual impairments

A golden principle that you should remember about people with visual impairments is that every one of them is different and with unique needs, strengths, weaknesses, talents, aspirations and **abilities to cope with challenges**. Some people may have been born without vision while others may have lost their sight gradually. For example, people with visual impairments who cannot rely on their sight may have coping strategies to manage to move around, because of that they may detect small details that otherwise no one would notice. Some of them may rely on a guide dog or use a white cane to help them get around. Others may have a level of vision that allows them to get around on their own. The impact of this disability depends on the kind of vision loss, how severe it is and how socialised the person is.

You can meet visually impaired people, for example:

- Walking around independently with white cane
- Walking around with a guide dog
- Walking around with a guide or personal assistant
- Using their residual vision to travel
- Using specialised navigation system/software/device

2.1.1 Types of vision loss/impairments

There are different types of vision loss/impairments, which people may experience either as innate impairment or may acquire throughout their life. It should be noted that this overview lists just some of the more frequent instances and it is not exhaustive. For complete information you may read different medical sources or publications. For example you may visit the dedicated sections of the website of the World Health Organisation (WHO): https://www.who.int/health-topics/blindness-and-vision-loss#tab=tab_3

- **Mild vision loss** – in this condition visual acuity is reduced but not severely. Some examples are early stages of cataracts or mild refractive errors that can be corrected with spectacles or contact lenses.

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- **Moderate vision loss** – it is a more significant visual impairment that may require stronger support or specialised aids. Conditions such as moderate macular degeneration or glaucoma may fall into this category.
- **Severe vision loss** – in this case the visual acuity is considerably impaired, and even strong corrective lenses may not fully restore functional vision. Examples include advanced glaucoma or diabetic retinopathy.
- **Profound vision loss** - severe reduction in visual acuity and/or of the visual field. People may rely heavily on assistive technologies/aids or may need personal assistance to perform some daily activities like moving around in an unfamiliar environment or avoiding obstacles. For example, conditions like advanced retinitis pigmentosa can cause profound vision loss.
- **Total blindness** – this condition manifests with the complete lack of visual sight due to physiological or neurological factors. People with total blindness are unable to see anything, including recognition of light and dark.
- **Central vision loss** – it is often caused by conditions such as macular degeneration, affects the centre of the visual field (the macula) due to retinal damage. Macular degeneration typically affects older adults and results in difficulty seeing fine details, reading, and recognising faces.
- **Peripheral vision loss** - also known as tunnel vision, occurs when people lose their side vision but retain clear central vision. In some cases, small patches of retinal activity on the periphery are preserved, allowing detection of movements and objects, which aids orientation. People with peripheral vision loss may not immediately notice the impairment, as the affected areas do not present as light or dark.
- **Blurred vision** – this is an eye condition in which both near and far objects appear blurred, even with the best possible spectacle correction. This can result from various eye conditions, including refractive errors, cataracts, and certain corneal diseases.
- **Colour blindness** or colour vision deficiency - is the inability to perceive differences between some colours that others can distinguish. It is most commonly genetic but can also result from eye, nerve, or brain damage, or exposure to certain chemicals. There are different types of colour blindness, including red-

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green colour blindness (most common), blue-yellow colour blindness and complete colour blindness.

- **Night blindness**, or nyctalopia - is the inability to see well in low-light conditions such as outside at night or in dimly lit environments like movie theatres or restaurants. This condition can result from a variety of causes, including retinitis pigmentosa, vitamin A deficiency, and certain medications.

2.1.2 Challenges faced by people with visual impairments

Blind or visually impaired people may experience some of the following difficulties:

- They are likely to be more dependent on their **hearing** in order to communicate with other people. They may not be able to match the tone of voice with facial expressions and gestures that make conversations easier to follow;
- They may have missed out on gathering **everyday practical information** about the world around which sighted people take for granted, and may therefore need to be introduced to new situations and to new environment in a practical way;
- They may have trouble seeing in low light levels or have problems judging speed and distance;
- In some cases **bright lights** may improve the visibility.

They might also have some **difficulties** with the following:

- Getting information from presentations;
- Reading written text from brochures, restaurant menus etc;
- Understanding diagrams and charts normally not read by specialised software for people with disabilities;
- Using ICT without assistive technologies like magnifier, JAWS software, etc;
- Using hotel facilities;
- Travelling to, from and around.

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2.1.3 Common barriers

People with visual impairments face some common barriers in their daily life, at work place as well as during social life activities. Here are some examples:

- Visual information (marking, directions, gestures, etc.);
- Printed materials (leaflets, information brochures, maps, menus, newspapers, etc.);
- Information related to emergency situations (evacuation ways signs, printed instructions in case of emergency);
- Difficulty in orientation in new surrounding without guidelines;
- Problems with independent use of new devices (e.g. elevator without special marking or other adjustment);
- Problems with recognition of different objects of the same shape;
- Difficulties with finding objects whose location has been changed.

Knowing these challenges may help you to be better prepared when accommodating people with visual impairments within your company. In order to address their special needs, you don't need to invest considerable material resources, but rather should spend time **preparing yourself** and your colleagues on how to communicate and interact with these people, as attitudinal accessibility could be one of the most important factors for removing barriers.

2.2 How to communicate with people with visual impairments

Interpersonal communication is the basis of interaction between people, no matter if they have a disability or not, as effective communication contributes to the successful provision of services and establishment of good relationships, and it also creates a positive emotional background. Communication between people should be always based on **mutual respect** on both sides and need to demonstrate helpful and compassionate attitude towards the others.
Here we provide some tips that may help you facilitate your communication with colleagues with visual impairment, which should

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not be treated as a recipe, but rather as a **guideline** which you may adjust according to the person and the context:

- Take the **hand** of the person when you greet him/her.
- Introduce yourself by **stating your name** when you meet and/or greet a person with visual impairment. (e.g. “Hi, Jon, this is Catherin. How are you today?”).
- Avoid asking “Did you recognise me?” or “Guess who this is?” etc. as this can be embarrassing for the person.
- Calling the person’s name is like making eye contact with people with visual impairments. Touch their arm or shoulder lightly, as you do so to be sure that your communication partner knows you are addressing them.
- While you have a conversation with a person with visual impairment, if you greet someone who is passing by, be sure you greet them by name so your communication partner knows who this is.
- Try **not to disappear** during your interactions. Tell the person when you are leaving and inform them if you are planning to discontinue your conversation by using words that mark the end of the conversation, for example: “I would like to say…” and “This is all I want to say”.
- Use **"people-first" language**: this means to put the person first and then the disability. For example, following this principle you should say "a person who is visually impaired" rather than “visually impaired person"
- Do not use “grandiloquent words”: it might be very offensive if you use words like “brave” or “inspiring” when addressing usual everyday activities like shopping or working. Such phrases are appropriate only for extraordinary achievements, not for the things that someone is doing while getting on with life.

2.3 The importance of workplace adaptation

It is crucial for employers to **ensure access** for people with visual impairments throughout the job application process and in performing essential job functions. This includes access to the building, work site, necessary equipment, and all facilities used by employees.

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Employers may need to make adjustments to accommodate people with visual impairments effectively.

In terms of accessibility, employers should consider the following:

- Facilitating the recruitment and retention of people with visual impairments by improving accessibility of the work premises. This involves ensuring easy entrance to and movement around the premises, as well as access to toilet and washroom facilities.
- Ensuring accessibility of signs, manuals, workplace instructions, and electronic information.
- Consulting with the visually impaired worker and adhering to criteria established by competent authorities when planning improvements for accessibility. For example installing screen readers, placing tactile signs on key spots such as elevator area, staircase, entrance etc.
- Ensuring that **emergency plans** enable safe evacuation for persons with visual impairments to a designated area of safety.

Reasonable accommodations, which may include modifications or alterations to job tasks or the work environment, aim to enable people with visual impairments to perform essential job functions effectively. The specific type of reasonable accommodation required depends on factors such as the nature of the job, work environment, and the individual's impairment. However, people with visual impairments themselves are best positioned to identify the specific adaptations they require.

Yet, there are some general guidelines that you may follow in order to make your bakery inclusive for employees with visual impairments:

- **Tactile markings and labels**: Use tactile markings or labels on equipment, ingredients, and packaging to help employees identify items by touch. For example, different textures or raised dots can indicate different types of flour, sugar, or baking tools.
- **Colour-contrasted workstations**: Ensure that workstations and countertops have high-contrast colours to aid visibility for employees with low vision. For instance, using dark countertops with light-coloured equipment can enhance visibility of tools and ingredients.

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- **Accessible oven controls**: Install oven controls with tactile markings to allow employees to adjust temperature and settings independently. Consider using tactile overlays or bump dots to mark temperature dials and buttons.
- **Tactile and auditory timers**: Provide tactile or auditory timers that employees can use to monitor baking times and avoid over or under cooking. These timers can have large buttons or tactile markings for easy operation.
- **Clear pathways and signs**: Ensure clear pathways throughout the bakery with adequate lighting and minimal obstacles to facilitate safe navigation for employees with visual impairments. Use high-contrast signs with large print to indicate different areas of the bakery, such as storage areas, prep stations, and restrooms.
- **Assistive technology**: Provide access to assistive technology such as screen readers or magnification software for employees who use computers or electronic devices for tasks like inventory management, order processing, or recipe planning.
- **Training and support**: Offer comprehensive training programs for all employees, including specific training on inclusive practices for working with colleagues with visual impairments. Encourage open communication and provide ongoing support to address any accessibility challenges or concerns.

These suggestions for adaptations will not only support employees with visual impairments to access and use facilities and equipment but will also **increase their productivity** and work performance. In most European countries, the legislation provides specific benefits for employers to adapt the working space for employees with disabilities. These typically include financial support for buying specialised equipment or adapting the work environment, tax reductions and allowance for specialised disability-related training, access to supported employment and others. We advise you to contact your relevant national authorities to obtain information about the legal benefits meant for employers hiring people with disabilities in your country.

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Annex 1 – Exercise

Role play game: "People with visual impairments – how do they feel?"

This game is suitable for a group activity and requires collaboration among the group members. The role of the facilitator is to give instructions and to explain the game scenario, as well as to observe and analyse the results.

1. The group is split into pairs. Each pair consists of a volunteer who plays the role of a blind person and another one who plays the role of a guide. For the role of the blind person you can use a scarf or something similar.
2. Each pair has the task to pass through a predefined route with some obstacles and when the final point is reached the participants change their roles on their way back.
3. After the completion of the scenario the participants are invited to share their experience and feelings. The learning facilitator asks the group which role was more difficult and how they felt.

The duration of the game is about 30 minutes.

Module 3. Social environment: discrimination in the workplace and how to contrast it

Discrimination against individuals with disabilities remains a persistent challenge in the European Union's workforce, despite efforts to improve inclusivity.

This module attempts to look at this issue from multiple angles by analysing the obstacles that people with disabilities are facing in accessing employment opportunities in the EU, and it also looks into some main normative approaches against such discrimination. The EU is in charge of ensuring an overall anti-discrimination strategy through the provision of both legal measures and other incentives that foster employers' engagement to create a working environment with

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no one excluded due to disability, but rather included and supported in being successful and access equal professional opportunities. This module will analyse the in-depth expression of the EU measures for the equalisation and the empowerment of employees with disabilities in the labour market.

3.1 Provisions at the EU level

Discrimination in the workplace is by far one of the major impediments in the full and proper integration of all members of the society, especially in the case of discrimination related to disabilities. This is a relevant issue for the European Union, since according to the latest estimates, around 16 percent of people in the EU countries who are aged 15 and older are persons with some type of disability. Inclusive employment rates are undoubtedly progressing, but people with disabilities are still underprivileged in the EU. Such an issue affects the EU's social convergence and economic perspectives: as a reaction, the EU has established legal provisions, implemented a number of initiatives and created strategies with the purpose of improving the employment opportunities for people with any kind of disabilities, taking into account their right to work and employment as a primary one, as expressed in the **UN Convention on the Rights of Persons with Disabilities** (CRPD).

The **European disability strategy 2010-2020** formulates the main strategy for implementation of the CRPD in the EU, which addresses the challenge of empowering the persons with disabilities to live with their full rights and to participate in the society, including the issue of ensuring equality in the labour market. Moreover, the **European Pillar of Social Rights**, created in 2017, fosters social inclusion through an approach that is aligned with the strategies already in place in the EU, particularly the European disability strategy and the **European Semester**.

The **2000/78/EC Directive** has proved to be the foundation of the efforts aimed at preventing discrimination in the employment and occupation domain across the European Union. This directive establishes general and fundamental rules of conduct to eliminate discrimination of all persons on the basis of several features, such as religion or belief, age, disabilities, and sexual orientation. It refers to

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the employment aspect as such, including the availability of employment, vocational training, employment conditions, and membership in organisations, so that the whole discrimination phenomenon is adequately covered within member states.

The EU encourages projects and initiatives targeting the access of persons with disabilities to **employment opportunities**. Such measures include anti-discrimination laws, employer adjustments, public employment services, accessibility improvements, fiscal preferential treatment and EU funding. The European Parliament realised the necessity of doing everything in its power to abolish any sort of discrimination of individuals with disabilities by focusing on employment settings as early as the eighties. This shows a shared determination to easily promote the working environment with all people, including those with disabilities, they can at the same contribute to the workforce meaningfully.

ISO 30415 is the set of guidelines which can be used for making the work environment more inclusive. It highlights the importance of commitment to foster diversity, equity, and inclusion (DE&I) in the workplace. According to these guidelines, to demonstrate commitment and develop an inclusive organisation it is necessary, among others, to uphold diversity, develop leadership skills, work and communicate cooperatively, support DE&I and be responsible for its implementation.

It should be acknowledged that these initiatives, though being inevitable for the achievement of social justice, contribute indirectly to the sustainable economic growth of the EU and its society. The EU should therefore do everything possible to remove the barriers to employment and open the door to equal opportunities, so that people with disabilities can fully contribute to driving innovation, productivity and social cohesion.

Ultimately, tackling discrimination at workplaces entails a common approach from all parties involved. Through creating an environment which is both inclusive and equal, it will be evident that no one will be prejudiced or discriminated against on the basis of their personal traits, and he or she will be accorded respect and dignity during their time in the job.

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3.2 Anti-discrimination practices

On the basis of the legislation that has just been presented, bakeries should undertake actions that ensure the practical implementation of the anti-discrimination legislation within their company. Here are some good practices that can be implemented:

Clear non-discrimination policies. Bakeries, also through the bakery mentors, might openly enact anti-discrimination policies that welcome people with disabilities and promote inclusivity. An internal strategic plan can be drafted in this regard, and also made public for customers if necessary.

Disability awareness training. Offering inclusive staff education to the management and the crew is vital to uncover what causes stigma towards disabilities or any unfairness, rather than relying on the acceptance of people with disabilities as a whole.

Accessibility measures. Whether it is through the physical workplace, printed materials, online platforms, or the commercial area, bakeries should let people with disabilities access as much information they need and ensure the usability of media supports and products.

Employee disability network. Create peer support groups and social groups based on disabilities, in such a way that employees with disabilities can have a space to interact with people with similar challenges and learn from each other. This may be useful also to know how to react in case of discrimination episodes.

Reasonable accommodation. The bakery policies and working procedures must be drafted in such a way that they are able to accommodate the employees' (special) needs. Meeting employees' requirements makes them able to perform their duties effectively, thus not being discriminated against for not being able to conduct a certain task.

Designated staff. The recommendation to designate staff for providing support services and anti-discrimination strategies is feasible for large enterprises, but challenging for smaller settings like

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bakeries, where the workforce is primarily focused on production. In larger companies, this can be managed by allocating teams of human resource managers or other managers who are adequately trained and knowledgeable about disability-related issues in the workplace and have the necessary skills to provide support measures against discrimination, among others.

Collaboration with experts and disability advocacy groups. This may be helpful to learn about their policies, receive tips from them, and brainstorm ideas on how bakeries can promote disability-inclusive initiatives. It might also be useful to work with business networks, organisations and industry associations to collectively advocate for persons with disability and share best practices, as well as learn from each other and seek ways of fighting discrimination.

Vendors outreach and supply chain engagement. Claim the respect of the same anti-discrimination principles from suppliers and partners. Encouraging them to have clear anti-discrimination standards in place and a culture of inclusivity will make this vision deeply rooted through the entire supply chain.

Employee volunteer programs. Offer employees some time that they can dedicate to volunteering programmes and initiatives that target diversity. This helps create a culture of corporate social responsibility and community-outreach engagement**.**

Figure 10: This image illustrates four key steps to empower marginalised entrepreneurs, ensuring they thrive by addressing potential biases and discrimination in business practices. The four areas to take into consideration are: Implementing diversity and inclusion policies, providing implicit bias

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training, encouraging open dialogue and feedback, partnering with diversity-focused organisations. Source: Intersectionality in Business: Empowering Marginalized entrepreneurs to thrive - FasterCapital. (n.d.). FasterCapital. https://fastercapital.com/content/Intersectionality-in-Business--Empowering-Marginalized-Entrepreneurs-to-Thrive.html

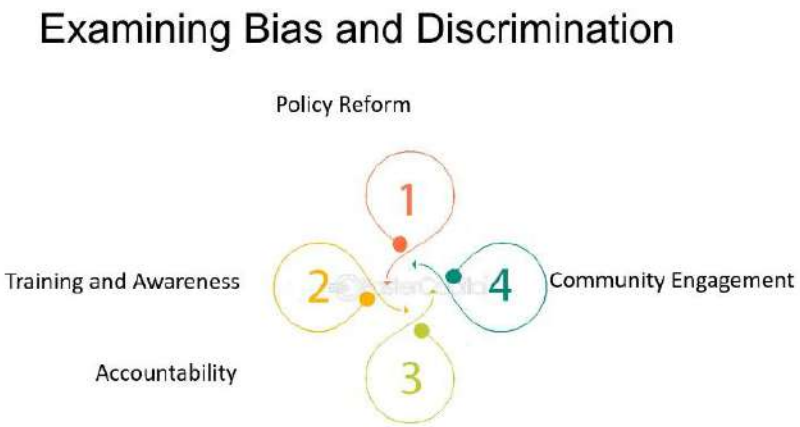

Figure 11: This image illustrates 4 steps to proceed with in order to examine biases and discriminations in the workplace. The steps are: policy reform; training and awareness; accountability; community engagement. Source: Intersectionality in Business: Empowering Marginalized entrepreneurs to thrive - FasterCapital. (n.d.). FasterCapital. https://fastercapital.com/content/Intersectionality-in-Business--Empowering-Marginalized-Entrepreneurs-to-Thrive.html

Module 4. Effective communication styles: communicating clearly and adaptively with visually impaired people

In this section of the Handbook, we analyse some of the essential skills of effective communication within the bakery industry, specifically tailored for interactions with visually impaired individuals. We aim to equip you with a deeper understanding of visual impairment and provide practical strategies for clear and adaptive communication. Our focus is on fostering an inclusive and empathetic environment, ensuring that every member of the bakery community, regardless of visual ability, feels valued and understood. Through this module, you'll learn to navigate and enhance interactions in a way

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that is respectful, supportive, and effective, contributing to a more inclusive and cohesive workplace.

4.1 Adaptive verbal and non-verbal communication techniques

Interacting effectively with visually impaired persons requires thoughtful adaptation of both verbal and non-verbal communication strategies. The absence of visual cues necessitates a heightened focus on auditory communication and a sensitive approach to ensure clarity and understanding.

4.1.1 Verbal communication strategies

Direct communication: When speaking with someone visually impaired talk directly to the person, not to their companion. This approach shows respect and acknowledges their autonomy. Example: when explaining a task, address the visually impaired employee directly. Instead of saying to their companion "Can you tell John to start mixing the dough?" say directly to John: "John, could you please start mixing the dough?"

Clear verbal communication: Use precise and descriptive language to convey information. Since visual cues are not available, descriptions should paint a clear picture for the listener. Example: when explaining how to bake a new type of bread, provide step-by-step verbal instructions such as: "First, measure 500 grams of flour using the talking scale. Next, add two teaspoons of yeast. Mix the ingredients in the bowl labelled with a tactile marker 'Mixing Bowl'." Instead of saying "The flour is over there", say "The flour is in the large container on the second shelf from the top, directly to your left when you are facing the mixing station". When describing a product, use detailed descriptions such as "The new pastry is a croissant filled with raspberry jam. It has a flaky, golden-brown exterior and a sweet, tart filling".

Consistent verbal cues: Use consistent verbal cues to signal transitions or changes in conversation topics. This helps the listener to follow the conversation flow more easily. Example: when

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transitioning between topics during a team meeting, use consistent phrases like "Moving on to our next topic", or "Now let's discuss the upcoming schedule changes". In a baking task, signal transitions with cues such as "Next, we will move on to kneading the dough", followed by "Now, let's shape the dough into loaves".

Tone and pace: Pay close attention to your tone and the speed of your speech. A calm and steady pace helps in conveying your message more effectively. Changes in tone can also convey emotions or emphasise important points. Example: when giving instructions, maintain a calm and steady pace: "First, measure 200 grams of sugar using the talking scale. Then, add it to the mixing bowl slowly while the mixer is on low speed". Use changes in tone to emphasise important steps: "It's crucial to preheat the oven to exactly 180 degrees before placing the bread inside".

Active listening: Reflect and clarify what the visually impaired person has said to ensure understanding. This also shows that you are engaged and value the conversation. Example: after an employee explains a challenge they are facing, respond with: "So, if I understand correctly, you find it difficult to locate the correct measuring cups. Is that right?". During a feedback session, summarise the employee's points: "You mentioned that the new layout is confusing. Could you tell me more about which areas are most challenging?"

Feedback solicitation: Regularly check with the person whether they understand your points and invite them to ask any questions or comments they might have. Example: after explaining a new process, ask: "Does that make sense? Please let me know if you need me to repeat any part of the instructions".

4.1.2 Non-verbal communication strategies adapted for auditory reception

Touch and tactile feedback: Lightly touch the back of a visually impaired colleague's hand to guide them to a specific item or area. Always ask for permission first: "May I guide your hand to the

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switch?". Use tactile markers, like raised dots or textured stickers, on frequently used equipment buttons to help identify them by touch.

Vocal acknowledgments: Since facial expressions or body language cannot be seen, use vocal variations to express emotions or reactions, providing a richer context for the conversation. Example: use words or sounds like "uh-huh" or "I see" to indicate that you are listening and engaged, similar to nodding or other non-verbal affirmations in visual interactions.

Descriptive action verbs: When actions are being taken, describe what you are doing. For example, if you're handing something to the person, say: "I am handing you the book now".

Spatial awareness descriptions: Be descriptive about the environment if it's relevant to the conversation or if you're guiding them in a new space. Provide clear and detailed descriptions of the layout, obstacles, or people in the vicinity. When guiding someone, offer your arm and describe the environment: "There is a step coming up in three paces. Here, take my arm for support".

Avoiding non-verbal fillers: Be mindful of non-verbal habits like nodding or gestures that don't convey any information verbally. Instead, replace them with verbal affirmations or descriptions.

4.1.3 Personalised communication

Ask for preferences: Inquire about their preferred way to receive information or any specific communication strategies they find effective.

Be patient and attentive: Give the person time to speak and express themselves without rushing them, showing respect and consideration for their pace of communication.

Use names: When in a group, use names to indicate who is speaking or who you are addressing to help the visually impaired person follow the conversation more easily.

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4.2 Creating an inclusive and accessible environment for communication

4.2.1 Physical environment

Accessible design: Ensure that all products and important signs are labelled in Braille. This allows visually impaired people to independently identify different items and navigate the bakery.

Screen readers and voice-activated devices: Equip the bakery computer system with a screen reader software like JAWS or NVDA, allowing visually impaired employees to access digital recipes and training materials. Use a voice-activated assistant like Amazon Echo to set timers and reminders: "Alexa, set a timer for 20 minutes." Use talking scales that announce the weight of ingredients, allowing visually impaired employees to measure accurately without needing visual confirmation.

Signage: Use raised lettering and tactile signs for essential information, such as product names, prices, sections, and exits and also to mark areas such as workstations, ovens, storage areas, and exits.

Acoustics: Equip key devices, such as scales, ovens, and timers, with voice output functions. This ensures that visually impaired employees can receive auditory feedback during baking and other tasks. Use an audio system for important updates, safety announcements, and shift changes to ensure all employees, including those who are visually impaired, are informed. Use voice memo apps to send important updates or instructions. For instance, a supervisor might record a voice memo detailing the steps for a new baking process.

4.2.2 Creating an inclusive communication environment for visually impaired employees

Feedback and adaptation: Encourage feedback on how to improve accessibility and be willing to adapt your methods of communication and the environment based on individual needs. Example: schedule bi-weekly one-to-one meetings with visually impaired employees to

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discuss their communication needs and any challenges they face. Set up an anonymous suggestion box where employees can leave feedback on workplace communication practices and suggest improvements.

Encourage independence: Offer assistance, but also respect and encourage the person's independence. Ask before assisting and be guided by their preferences and needs. For instance: "Would you like help with finding the ingredient, or do you prefer to locate it yourself?"

Team collaboration: Pair a visually impaired employee with a sighted colleague during busy shifts. The sighted colleague can help with tasks that require visual confirmation, like decorating cakes or arranging displays. During team meetings, ensure all information is communicated verbally. If visual aids are used, describe them in detail: "We have a new promotional poster featuring a loaf of sourdough bread with our bakery's logo in the background. The poster has a vibrant yellow border and highlights the special offer of a free coffee with any sourdough purchase".

Figure 12: The AI-Generated Image depicts a bakery setting where a visually impaired employee and a sighted colleague are working together during a busy shift. The visually impaired employee is arranging bakery items on a display shelf, while the sighted colleague is assisting with decorating a cake. The bakery has a warm and welcoming atmosphere, with customers visible in the background. The scene highlights teamwork and collaboration between the two employees.

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Training and awareness: Equip all staff with the knowledge and skills to communicate effectively and respectfully with visually impaired colleagues. Educate staff on the different types and levels of visual impairments and how they might affect a person's ability to work. Train them on effective verbal communication techniques, including speaking clearly, describing actions and surroundings, and using respectful language. Teach staff how to offer assistance appropriately, such as asking before helping and giving clear, verbal instructions. Another suggestion could be conducting regular workshops to reinforce learning and provide practical, hands-on experience. These workshops can include role-playing exercises and guest speakers from the visually impaired community. A workshop might also include an activity where sighted employees wear blindfolds and perform simple tasks to better understand the challenges faced by their visually impaired colleagues.

Emergency procedures: Ensure that emergency procedures are accessible to all individuals, including those with visually impaired.

Continuous improvement: Regularly assess the environment and communication practices for inclusivity and accessibility. Stay updated on new technologies and methods to enhance accessibility.

4.3 Best practices:

4.3.1. Fujitsu (Japan)

Fujitsu holds regular one-to-one meetings with visually impaired employees to discuss their needs and challenges. They also have an anonymous suggestion box system to gather feedback on workplace communication practices and suggest improvements, ensuring continuous adaptation and improvement.

4.3.2. Vision Australia

Vision Australia promotes pairing visually impaired employees with sighted colleagues during busy shifts. This buddy system helps with tasks requiring visual confirmation and fosters a collaborative work environment. Provide assistance to a current staff member

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experiencing vision loss, including an individualised workplace assessment so they can successfully execute tasks in their position. Provide information and training to co-workers in relation to the practicalities of working with a visually impaired person.

Here is a video of Bashir, a Vision Australia Orientation & Mobility specialist explaining how he supports people with visual impairments to feel safe and confident in the workplace: https://www.youtube.com/watch?v=1AR85t-kRpQ

4.3.3. IBM

IBM conducts workshops where sighted employees wear blindfolds to perform simple tasks. This helps them understand the challenges faced by visually impaired colleagues. They also provide comprehensive disability awareness training that covers effective communication techniques and appropriate ways to offer assistance.

https://www.pocklington.org.uk/education/education-policy/spss-access-denied/

Module 5. Physical environment: safety standards and accessibility

One of the roles of a mentor for visually impaired employees is to ensure the accessibility of the workplace and of the job tasks for their mentees. In turn, a key design feature of a bakery accessible for visually impaired workers implies the minimization of dangerous situations, with special attention to equipment selection and installation. Here are some of the main elements that need to be taken into consideration when it comes to accessibility in the workplace for visually impaired employees.

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5.1 Accessibility standards

5.1.1 General accessibility rules for bakeries

The **floor** must be covered with non-slippery tiles, and at least one floor-drain is required. It is advisable to install the drain in front of the sinks, with a suitable slope for best outage. When installing floor-drains, care must be taken to avoid tripping, consequently any difference in level is unacceptable.

It is advisable to cover the **walls** with light coloured tiles up to a height of 180-200 cm for easy cleaning. **Local lighting** should be installed to illuminate the work surfaces, lamps hung from the ceiling should be directly above the work tables in the centre of the bakery shop. The bakery lights must be sealed, dust and moisture-free. Mosquito nets must be installed on the windows.

A practical solution to dispose of hand washing and cleaning **water**, as well as for pouring off cooking water, is to set up a combined hand washing spout with cold and hot faucet. The station used for hand washing must be equipped with a paper towel and a disinfectant liquid soap dispenser, supplemented by a pedal-operated trash can.

We recommend the installation of a double-basin **sink** with cold and hot water faucet. A perforated tray placed inside the sink is suggested for dripping purposes. We do not endorse getting a wall-mounted drip shelf, since it's more difficult to use for the visually impaired worker, and misplaced tools may fall!

Installing **magnetic knife holders** above the table is practical. Reaching into drawers by the visually impaired worker often leads to cuts and injury.

It is advisable to have custom **stainless-steel furniture** manufactured with rounded corners in order to reduce the chance of accidents.

For the **storage** of raw baking ingredients, a refrigerator, freezer and closed, stainless cabinets are required.

It is also necessary to install a separate **industrial dish sink**, a stainless-steel type is preferable. A good option is a mobile three-level

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drip cart, which can be stored elsewhere when not needed, freeing up available space for various work processes.

5.1.2 Additional accessibility guidelines for VIPs

An accessible **pathway** must be provided within the workplace. The minimum width for straight passages is 120 cm, narrowing to no less than 90 cm at blockages. The width should not be much greater than the recommended parameters as it increases the chance of the visually impaired worker to lose orientation. If large spaces are unavoidable, a tactile guideline should be installed on the floor covering. This can be achieved by changing the colour or the surface roughness. When using guidelines with continuous surface properties (e.g. rubber strip), the recommended width is 30-40 cm to assist better perceptibility. Proper fastening and continuity are the primary considerations when installing guidelines.

Furniture and equipment must not be placed in the passages, especially not in the proximity of guidelines. If this is absolutely unavoidable, then it is worth using a colour contrast and making sure that it can be detected with a long cane.

Floor covering should be matte and single colour, any design patterns on the surface should be avoided. The entrance, exit and key direction changes should be indicated by floor warning signs.

Differences in the level of the **walking surface** need to be avoided. If modification of level is necessary in the workspace, a marking needs to be placed on the wall. It is also advisable to highlight the placement of electrical switches. Door handles should also have contrasting colours, and larger glass surfaces should be made obvious at eye level.

Toilets, washrooms need to be marked with a large pictogram (approx. 15X15 cm) with high contrast for easier visibility. Brightly coloured markings on white walls are a good way to facilitate detection and orientation for light switches, flushing buttons, paper dispensers, trash cans and other equipment.

Fittings obstructing movement can be dangerous for the visually impaired worker. When such situations arise, properties of the

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walking surface need to be altered, objects should be lined with barriers, as well as warning signs placed in contrasting colour. The symbols must be obvious in regards to the obstruction.

5.1.3 Lighting and dazzle

The ability to adapt to light intensity being compromised for the majority of visually impaired persons, **natural light** is the best source of light for visually impaired people. However, the intensity of natural light can vary in different parts of the building, and efforts should be made to minimise the difference in light intensity within the bakery. This can be best achieved by supplementing natural light with artificial light.

Among the artificial light sources, traditional light bulbs emit concentrated, intense light. Their application is essential as local lighting when working close to the light source.

On the other hand, high **luminosity** main lighting enables illumination of larger areas without creating shadows. This type of lighting has a low energy consumption, so it's more economical than bulbs of similar luminosity. The combination of neon-tube and modern LED lighting is beneficial, since blue light sensitivity is compromised for some types of eye disease. Therefore, using mainly cold light sources should be avoided for those with impaired vision.

Properties of lighting include **reflections**, which needs special attention when designing workspace for people with disabilities. In general, light reflected from shiny surfaces causes glare, thereby reducing visibility. Sharp light sources, including unshaded sunlight, reflected on shiny surfaces like high-gloss floor coverings, floor tiles, PVC, as well as the shiny table surface, counters, tiles, chrome faucets all create glare, hence reducing visibility.

5.1.4 Colour contrast and size of the objects

Low contrast sensitivity is a symptom in many types of visual impairments. The use of colour contrast greatly improves the visibility at the workplace, in our case workbenches, light switches, handles, need to be highlighted in such a manner. Colour contrast helps to find, identify, differentiate utensils.

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It is not rare to see chromatopsia damage in visually impaired people. Since differentiating by colour tone is compromised, it is essential to increase contrast to bring out detail. The disparity and intensity of contrast should be determined in cooperation with those working on the shop.

The **size** of the object also has a great effect on visibility. Smaller objects could be moved closer to the eyes, while in case of larger ones it's more practical to lean closer. For very small objects the use of a magnifying lens is recommended. A thin line or a small sign can be made more perceptible by using a thick felt tip pen to highlight. For larger objects this approach is not appropriate, since only a part of the object becomes larger, which distorts the object's true representation.

5.1.5 The role of markings

It is feasible to use signs that are clear and useful for everyone (for example, marking on steps) as well as special signs that are only used by visually impaired people. The marking is appropriate if it provides **clear information**, is safe to use and does not bring about difficulties. It's always advisable to choose the appropriate marking method collectively. Marking should always have a definite purpose, as users of the workplace tend to memorise a lot of information. The solutions need to be definite, subsequently the sign should be made **permanent** and not changed over time, and obviously it should not hinder the use of the apparatus.

When choosing the type of marking, the following aspects need to be considered:

- How often will the marking be exposed to heat? Glued signs that are constantly exposed to heat may detach in time
- In addition to tactile signals, partially-sighted users can benefit from contrasting, coloured markings to differentiate positions of tools and settings on machines.
- Is the user able to distinguish the mark by touch?

5.1.6 Marking apparatuses and methods

We recommend **glueing** tactile materials on storage boxes and containers, like Braille inscriptions or large letters on Dymo tape.

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On household appliances, it is important to establish a **reference point** in relation to the marking. In other words, a starting point needs to be marked on the device to which the marked button is adjusted. Ideally, there is a 0 position marked on the appliance, in relation to which the rotary knob must be adjusted. A tactile sign can be **painted**, for instance using nail polish to form a raised surface, but a simple scratch mark is also suitable. Another example for a visible sign is a bright-coloured **self-adhesive** dot (sold as a shock absorber), or alternatively an enlarged number or letter. The accessibility designer should always consult with the impaired users to determine which type of marking is the most appropriate on the given equipment.

Bottles of detergents and cleaning products can be differentiated with the help of **Braille inscriptions**, large letters and signs applied with adhesive. Care has to be taken to avoid mixing up the markings. Additionally, food and chemicals must strictly be stored on separate selves, and their emplacement must be consistently observed by every employee.

When designing a suitable work environment for the visually impaired worker, it is good to keep in mind that non-optical aids tend to increase the efficiency of optical ones. Being aware of the factors affecting visibility as well as the visual performance of the workers, allows accessibility designers to adapt the environment accordingly, for instance by skilful lighting, colour contrast and optimal marking size.

5.2 Best practices

- Local lighting should be installed to illuminate the work surfaces, lamps hung from the ceiling should be directly above the work tables in the centre of the bakery shop.
- It is advisable to have custom stainless-steel furniture manufactured with rounded corners in order to reduce the chance of accidents.
- An accessible pathway must be provided within the workplace.
- Efforts should be made to minimise difference in light intensity within the bakery. This can be best achieved by supplementing natural light with artificial light.
- Colour contrast helps to find, identify, differentiate utensils.

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Figure 13: This image shows some colourful kitchen utensils: measuring cups and spoons, potato and apple slicers, lemon squeezer, and a funnel all in different, vibrant colours

.

Figure 14: This image shows two milk cups, the dark cup highlights contrast with the white liquid, making it much easier to recognize.

Figure 15: This image shows the control panel of a kitchen oven. The turn knob is marked so that a reference point can be determined by touch. It is important to establish a reference point in relation to the marking, a starting point needs to be marked on the device to which the marked button is adjusted.

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Module 6. Multilevel evaluation techniques: enhancing organizational policies and employee development

A proper evaluation and monitoring process is fundamental for the continuous improvement of a company that wants to be inclusive, both for testing its level of inclusiveness and for understanding the competencies of its employees, in a framework of training and updating of their own skills. In general, evaluation tools are standardised, and it is not always easy to find the right tool for your target group or for the type of course or training offered. This module aims to examine the importance of feedback and evaluation in bakeries, providing tools and techniques that contribute to the creation of an effective work environment.

6.1 Workplace evaluation: aims and steps

The objective of the VIPs Vibes project is to make bakeries more inclusive and to train bakers to be mentors who oversee **inclusiveness** in their company. To do this, it is important to monitor the level of inclusiveness of the company and its staff and to be able to provide feedback and evaluation, to understand strengths and areas for improvement on the one hand, and to ensure that progress is being made towards inclusivity goals on the other.

Although today there is a strong focus on diversity as an asset, to ensure an inclusive environment it is essential to create practices and processes that reflect and promote inclusivity and to have the right techniques in place to regularly monitor the level of inclusivity in the company. In this regard, various strategies exist to promote diversity and inclusion in the company, that help assess the current situation, integrate diversity and inclusion policies into the core business, value diverse talents, make the recruitment process inclusive, promote transparency.

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First of all, it is necessary to understand **how to assess the level of diversity and inclusion** in a work environment.

In terms of the working environment, diversity is about the **"who"**, i.e. the qualities and characteristics of an individual. Inclusion, on the other hand, is about the **behaviours**, the experiences that make someone feel welcomed and part of the organisation.

When setting up evaluation methods, it is first necessary to identify the **metrics and assessment criteria** that can be observed and measured in order to ascertain the level of inclusiveness of a company and to which it should aspire. To set these criteria, we will use an article by Molly Touger (2023) entitled "What is an inclusive workplace?".

1. An inclusive workplace accepts **flexibility**. Being flexible with regard to the different ways in which people think and process information, interact with others and achieve their goals is crucial, without discriminating against anyone because of their religion, gender, sexual orientation or ethnic origin.

2. Inclusive workplaces **support** different categories of workers such as people with physical disabilities or who have special needs, foster an environment that welcomes differences and removes barriers to participation. Some categories of workers need more support because they may be wheelchair or cane users (such as the VIPs), and for whom access to the workplace and full usability of spaces must be guaranteed, as well as a positive climate from colleagues.

3. An inclusive workplace should **enable** all workers to access the support they need to do their jobs, regardless of whether they choose to disclose a disability, providing resources they can use themselves (e.g. low-tech tools such as checklists to high-tech software that transcribes what people say during meetings).

4. An inclusive workplace **encourages** conversations about differences, creating moments and a favourable climate where people feel comfortable in talking about differences and disabilities.

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It is then important to understand that there are several different evaluation tools that can be used to observe the level of inclusivity. Below are some assessment tools to be used in companies:

Surveys: Conduct internal surveys to assess the level of inclusion within the company. Questions can cover topics such as sense of belonging, equal opportunities, acceptance of diversity and access to resources.

Paper or digital surveys (Microsoft Forms/Google Forms) can be used.

Discussion moments: Organise focus groups to explore specific issues related to inclusion in the company, moments in which people can feel free to express the company's strengths and weaknesses towards this issue, share their experiences and perspectives and suggest improvements.

Inclusion index: Develop an inclusion index that combines various metrics related to diversity, equity and inclusion (DE&I). This index can include factors highlighted in the evaluation criteria section above.

Anonymous reporting: anonymous reporting systems to bring cases of discrimination, harassment or non-inclusive behaviour within the company.

Accessibility audits: Conduct audits to assess the accessibility of physical spaces, digital platforms and company policies for employees with disabilities.

Regular monitoring: Evaluate the level of inclusivity progressively over time, to assess the effectiveness of corrective measures and progress, and determine whether there is room for improvement against set targets (SMART targets).

The effectiveness of evaluation tools depends not only on their design and delivery, but also on everyone's commitment to act on the knowledge gained to continuously improve the working environment. Use evaluation results to inform interventions and policies aimed at improving inclusion within the company.

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Here are some examples of activities you can do internally to evaluate or implement the topic of inclusion:

6.1.1 Survey

This is an example of a survey to assess the level of Inclusiveness in a workspace

To the attention of staff members,

Our goal is to create an inclusive and welcoming work environment. That is why we are asking you to contribute your feedback to evaluate our work environment and to understand together how we can improve it.

Your answers will be anonymous and treated with the utmost confidentiality and company privacy.

Thank you for your participation!

Section 1: General information (Optional)

1. What is your gender?
    - Male
    - Female
    - Non-binary
    - I prefer not to answer
    - Other: _____

2. What is your age?
    - < 25
    - 25-34
    - 35-44
    - 45-54
    - 55+

3. How many years have you been working in the company?
    - <5
    - 5-10
    - +10
    - Other: _____

Section 2: Level of Inclusiveness

4. In general, do you feel included and respected in the workplace?
    - Always
    - Often
    - Sometimes
    - Rarely
    - Never

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5. Do you think the company actively promotes an inclusive working environment?
    - Absolutely Yes
    - Yes
    - Neither yes nor no
    - No
    - Absolutely no

6. Do you feel comfortable sharing your ideas and opinions with colleagues?
    - Always
    - Often
    - Sometimes
    - RarelyNe
    - Never

7. Do you feel comfortable sharing your ideas and opinions with your boss?
    - Always
    - Often
    - Sometimes
    - Rarely
    - Never

8. Does your company promote training on the issue of inclusion?
    - Always
    - Often
    - Sometimes
    - Rarely
    - Never

Section 3: Personal Experiences

9. Have you ever experienced or observed incidents of discrimination or non-inclusiveness in the workplace?
    - Yes, often
    - Yes, sometimes
    - Rarely
    - Never

10. If yes, can you tell us more about it? (Optional)

_____

11. In the case of discrimination or non-inclusive incidents, do you think the company has behaved appropriately?
    - Yes, always
    - Yes, in most cases
    - Sometimes
    - Rarely
    - Never

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12. Do you think the company could do more to address incidents of discrimination or non-inclusion?
    - Yes
    - Yes, in most cases
    - Sometimes
    - No

Section 4: Suggestions and Improvements

13. What do you think the company can do to improve inclusiveness in the workplace?

_____

14. Are there any initiatives or activities that you think the company should include to foster a more inclusive workplace?

_____

15. If you have any other comments or suggestions, please post them below

_____

Thank you for your time and contribution.

Your feedback is invaluable in activating strategies to improve inclusiveness in the company.

In any case, if you feel that there are issues related to the inclusion of your person or a colleague or concerning incidents of discrimination, please contact our contact person XXXXX (Insert contact details of the contact person).

6.2. Awareness activities related to inclusion

One possible approach for fostering the level of inclusiveness in the workplace is to present **case studies** that address issues of inclusiveness and diversity in the workplace, or that illustrate how organisations and companies promote such values. Participants could be divided into small groups, each of which would be provided with a case study. The groups would then engage in discussion about the situations presented, before sharing their reflections with the wider group. This would include an explanation of how the experiences could be applied within their own organisations.

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The use of **role-playing** as a methodology could be proposed by the creation of situational scenarios in which participants are required to face situations of discrimination or a lack of inclusiveness. As an illustration, one might construct a set of cards, each inscribed with a distinct role, such as "the bully," "the peacemaker, "the activist," or "the geek. These roles could then be distributed in a confidential manner, with only the individual in possession of a given card aware of their assigned identity. The moderator, who is responsible for overseeing the proceedings, will propose a topic. For illustrative purposes, one such topic might be, "Install a noticeboard in the office where employees can contribute positive messages to share with colleagues." At this stage, a discussion should be initiated, with each participant contributing to the discourse in accordance with the role assigned to them on the card. This type of activity is conducive to reflection and the fostering of awareness regarding behavioural norms in the workplace.

The concept of the **'idea box'** may be considered as a potential mechanism for facilitating the generation of ideas from within the organisation. It is recommended that staff be invited to submit anonymously any ideas they may have regarding the implementation of inclusivity within the company. Following this, a brainstorming session should be held in which the ideas remaining in the box are examined. All ideas should be welcomed and considered without judgement.

The meeting would benefit from the participation of a **guest expert** on diversity and inclusivity. Subsequent to the presentation, an open forum for questions would be a fruitful addition to the proceedings, allowing attendees to delve more deeply into the subject matter.

- The **Inclusivity Mapping Activity** is designed to assess the extent to which an organisation is inclusive in various aspects of its operations. A map or table should be provided, identifying the various areas of the company (for example, recruitment, promotions, work environment, etc.). Participants should then be asked to rate the inclusivity of each area. The results should then be discussed and plans developed to improve the areas identified as less inclusive. Here below there is an example of Inclusivity Map

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Inclusivity Map
INSTRUCTIONS

On a sheet of paper draw a circle, divide the circle into eight segments.
In turn, draw 10 concentric circles so that each segment has 10 'portions'.
Now identify eight areas related to the theme of inclusion that you want to analyse, we suggest the following eight, but you can customise as you wish.

1. D&I policies and strategies
2. Headcount and employee composition
3. Career and development opportunities
4. Corporate climate and culture
5. Accessibility
6. Remuneration and Benefits
7. Recruitment and Hiring Practices
8. Feedback and Conflict Resolution

Ask your employees to colour code each segment according to the degree of satisfaction they have in that particular area. Once they have coloured all the segments, you will have an overview that you can comment on and evaluate together over time by taking the test again.

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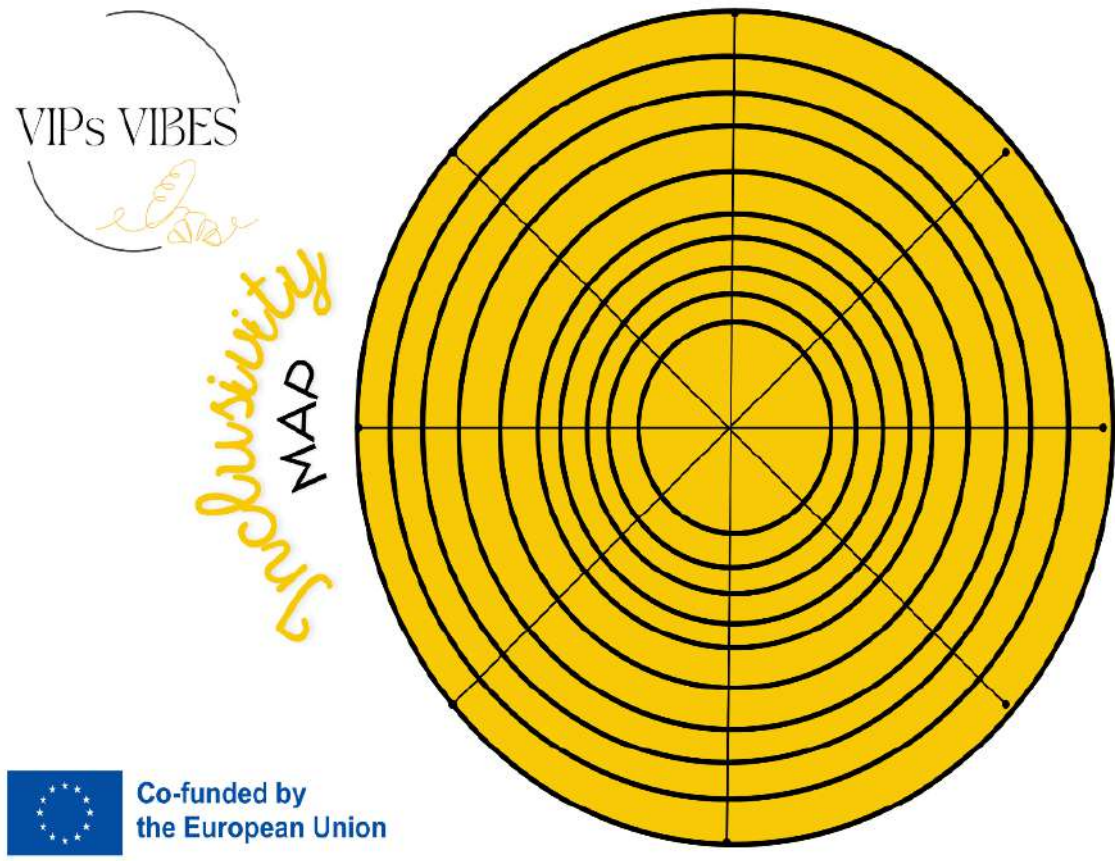

Figure 16: The image shows what is called an 'Inclusivity Map', represented by a series of yellow concentric circles. Each circle is divided into 10 symmetrical sections and each segment is used to assess or visualise different aspects of inclusivity.

Success Stories: Share success stories of other companies or people who have implemented effective inclusiveness practices. For example, one might extend an invitation to such individuals to participate in workshops, training sessions, or conferences. In addition, it is useful to provide more details on the feedback that can be used in a work environment.

As we have seen, if a workplace wants to open to a more inclusive dimension, it must first understand the current level of inclusiveness within it. Equally important, however, is to understand the most appropriate ways of giving back, both in the implementation of an internal feedback process and in the company policies, especially with a view to training internal staff to oversee inclusiveness in the company.

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After assessing the degree of inclusiveness in a work context, it is necessary to provide the right motivation and incentive for employees to improve. Activating a feedback process, both positive and negative, is essential to help one's work environment improve and achieve the set goals and mission.

However, before giving feedback, it is necessary to be able to understand which feedback can be constructive and thus fosters 'growth' and which feedback is counterproductive.

Therefore, what is constructive feedback?

Luke Henderson (2023, Constructive Feedback: Why It's Important & 7 Ways to Give) It describe it with the following definition:

"**Constructive feedback** is basically feedback that is aimed at:

- Improving a person's performance or behaviour
- Helping the recipient learn, grow, and develop their skills
- Being focused on behaviours and actions that can be changed or improved
- Being honest, specific, and actionable".

For example, feedback that is too harsh does not help people to improve and excel, but can be perceived as criticism and lead to frustration and decreased motivation. Effective feedback must be given with **respect and care**. Starting with the strengths noted and then shifting the focus to analysing weaknesses, providing ways to improve, can be perceived as more motivating and appreciable. This phase should be a phase of joint construction, in which feedback is not given 'from above', but the mentor also tries to listen to proposals and stimulate reflection in order to find joint solutions with the mentee.

In the article cited above, Luke Henderson also provides 7 tips for offering constructive feedback in a positive way in the work environment:

1. **Choose the right time and place** to give feedback. It would be preferable to offer feedback in person or via video conference rather than via e-mail or telephone, which are more impersonal methods and can lead to misunderstandings.

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2. **Be objective.** Feedback should be based on observed facts, avoiding personal judgements or interpretations. It is essential to be respectful and focus on opportunities for improvement, using specific examples and asking for feedback to foster dialogue.

3. **Provide suggestions for change**. Offer specific suggestions for improvement rather than merely identifying problems. Try to communicate your point of view in a kind and constructive way, focusing on possible improvement strategies rather than only on the problem itself.

4. **Use the "carrot and stick" methodology**. Try to balance criticism with positive aspects and try to end the feedback session with a positive message to motivate the person to improve.

5. **Communicating using emotional intelligence** skills. This helps foster an atmosphere of mutual respect.

6. **Encourage dialogue**. Start giving feedback with a positive comment, ask for consent to offer suggestions and encourage collaboration by providing specific suggestions and appreciating willingness to listen.

7. **Maintain respect and focus**. Focus on positive points, avoid generalisations and offer specific and constructive feedback to guide the improvement process.

6.3. Evaluation techniques

As far as evaluation techniques are concerned, we would like to focus on the differences between formative and summative evaluation.

Although both are similar assessment methods, they have different objectives and use data differently. Both are assessment methods mainly used in education to evaluate students but, although they may appear similar, they have different objectives and use data differently.

Formative assessment. Its purpose is to monitor the mentee's learning process and provide continuous feedback. It is usually non-graded and based on analysis of the mentee's strengths and weaknesses. It is an assessment for learning and should help

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mentees to improve the management of their own learning process. This type of assessment can be guided by a third party (tutor or peer) or conducted as a self-assessment.

Summative assessment. On the other hand, this methodology has the objective of evaluating the learning outcomes achieved by the mentee at the end of a certain activity, comparing it with some standards or benchmarks (the classic grade given with reference to assessment grids). Feedback from this assessment can be used by both mentor and mentee to improve the process of skills and competencies acquisition. Feedback is usually less personal than the formative assessment because it is more standardised, giving a grade concerning a specific task/activity.

In order to have a comprehensive assessment system, it would be useful to use both formative and summative methodologies, so as to benefit from the evaluation obtained from both points of view, with different timing and tools.

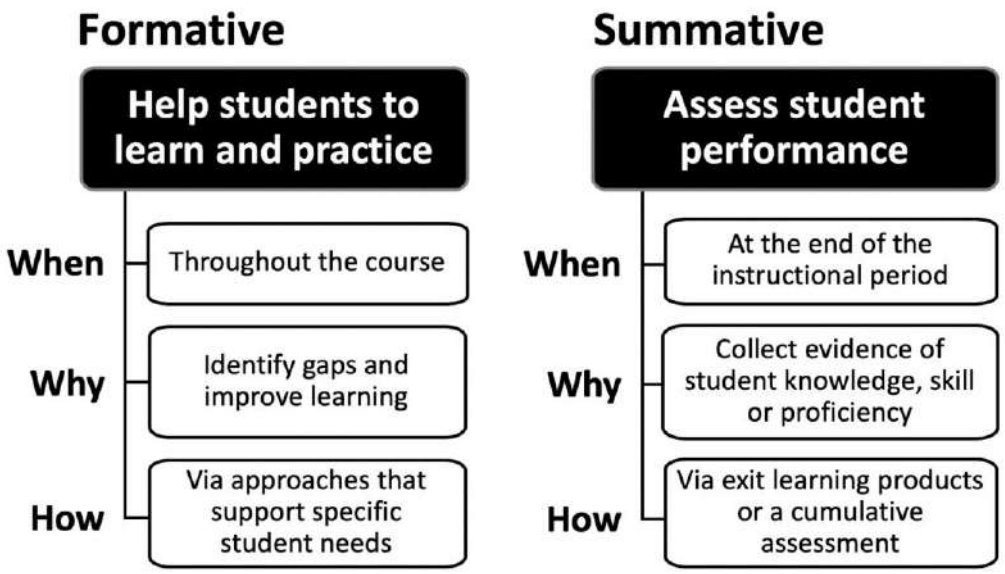

Figure 17: What Is The Difference Between Formative And Summative Assessment? Source https://vietnamteachingjobs.com/formative-and-summative-assessment/ This chart proposes a distinction between formative and summative assessment taken from the Vietnamteachingjobs site. Formative assessment takes place during the course, helping students to practise and improve through strategies that close learning gaps. In contrast, summative assessment takes place at the end of the instructional period, measuring skills acquired through final tests or cumulative assessments.

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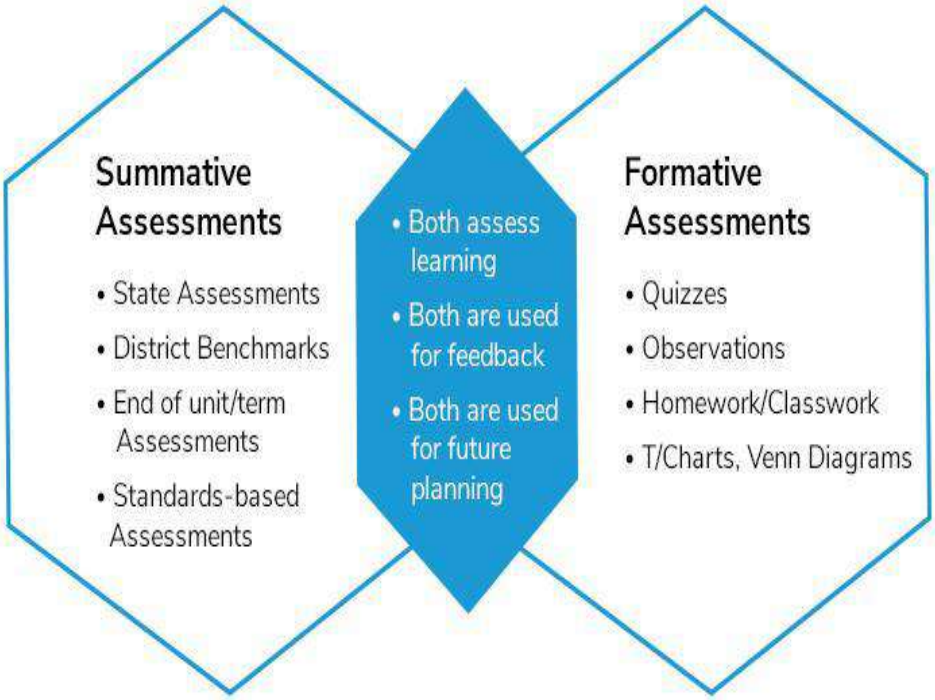

Figure 18: What's More Important: Formative or Summative Assessments? Source https://vietnamteachingjobs.com/formative-and-summative-assessment/ This chart, also taken from the Vietnamteachingjobs site, offers an evaluation of the pros and cons of formative or summative assessment, comparing the two methods to see which is better. In comparison, both assess learning and provide feedback for future planning. Formative assessments include quizzes, observations, tasks and diagrams, while summative assessments include state assessments, district benchmarks and end-of-unit or term tests.

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