Enhancing Emergency Response

Notruf Niederösterreich's Remote Work Triumph – Unveiling the Positive Impact on Employee Satisfaction, Stability and Environmental Footprint

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Foreword

In the landscape of emergency response, adaptation to chance is not merely an option; it is a necessity. This case study delves into the transformative journey of Notruf Niederösterreich, an organization at the forefront of innovation in medical emergency communication and control.

As we navigate the pages that unfold the narrative of our transition to a remote work environment, it is essential to acknowledge the visionary leadership of the former CEO, Christof Constantin Chwojka, whose foresight and commitment paved the way for the installation of home offices and remote work opportunities. With the help of dedicated staff one of the mottos of Notruf Niederösterreich is “if there is no way, we will find our own way and build it”. And with this, we take the opportunity to thank all employees that dedicate their efforts to this company, ensuring a smooth operation and continuing the technical advancement Notruf Niederösterreich is known and respected for.

Executive Summary

In an era of rapid technological advancement, evolving work dynamics and frequent turnover, the landscape of emergency response is undergoing a transformation. Notruf Niederösterreich, the cornerstone of medical emergency communication and control in Lower Austria, stands at the forefront of this evolution. The traditional image of emergency call centers, typically bustling with call takers and dispatchers has seen a paradigm shift, embracing the concept of remote work to adapt to the changing world.

Through this narrative we unravel the motivations, challenges, strategies, and outcomes that accompanied the transition. The spotlight is on the adaptability and resilience of the organization, the commitment of its employees, and the far-reaching impact of this bold initiative.

This document intends to…..

This case study dives into the pioneering approach adopted by Notruf Niederösterreich in facilitating a remote work environment for their call takers, an endeavor aimed at not just ensuring continuity in service but redefining the boundaries of efficient emergency response. The journey from a centralized workspace to a distributed, home-based operation represents a unique exploration of how modern technologies and innovative strategies can converge to maintain and possibly elevate the quality and speed of emergency services.

This document contains…..

- An introduction to emergency services in Lower Austria, the role of Notruf Niederösterreich, and their operational protocols and quality standards
- The implementation of remote working in the region
- The challenges and solutions encountered
- The impact and results of remote working
- Recommendations

1. Introduction

1.1 Lower Austria and Emergency Services

Lower Austria, located in the northeastern part of Austria, is the country's largest state in terms of land area and second largest in population with 1.7 million citizens. It encompasses a diverse topography from the foothills of the Alps to the fertile plains along the Danube River, featuring both rural as well as urban areas with varying population densities.

In Austria, access to emergency services is facilitated through four distinct contact numbers, designed for specific types of emergencies. Dialing 122 connects individuals to fire departments, 133 and 112 to police departments, and 144 directs callers to medical emergency call centers.

Typically, these services are dispatched from the nearest departments distributed throughout the state. However, in Lower Austria, there is one singular medical emergency call center serving the entire region: Notruf Niederösterreich.

1.2 Notruf Niederösterreich: Numbers and Facts

Notruf Niederösterreich serves as a comprehensive medical emergency command and control (ECC) center, strategically distributed across four dispatch centers located in Stockerau, St. Pölten, Mödling and Zwettl.

In the year 2022, the organization had at its disposal a diverse array of over 2000 dispatchable resources spanning from first responders, Advanced Life Support (ALS) and Basic Life Support (BLS) ambulance units to Helicopter Emergency Medical Services (HEMS), mountain rescue, water rescue and search, rescue dog units and more.

During the same period, Notruf Niederösterreich recorded a notable 2.2 million calls, not exclusively limited to medical emergencies. The facility plays a pivotal role in responding to a range of situations, offering support and coordination for diverse emergency scenarios.

Incoming calls to Notruf Niederösterreich are directed through various designated numbers, including but not limited to:

- 144 the medical emergency number
- 141 the out-of-hours doctor's service number
- 140 the mountain rescue number
- 1450 a health consultation by phone
- 148xx various patient transportation numbers

alongside other lines such as psychological help hotlines and hospital and nursing home complaint services.

To manage this substantial volume of calls, Notruf Niederösterreich operates with a workforce of just over 300 employees in various roles. Notably, positions most significantly impacted by remote work arrangements include Call Center Agents, members of the quality management team and back-office personnel.

1.3 Operational Protocols and Quality Standards

Notruf Niederösterreich adheres to rigorous protocols across all facets of its operations. Call takers handling non-emergency calls, follow an organization-internal protocol known as WebCallAssist (WCA). This internally crafted protocol serves as a comprehensive guide for employees, offering step-by-step assistance for various types of calls, encompassing patient transportation, brief inquiries, and complaint resolutions. WCA is accessible through a web browser, and any information inputted seamlessly transfers back into the Computer Aided Dispatch (CAD) system with a simple button press.

In handling emergency calls, Notruf Niederösterreich employs the Medical Priority Dispatch System (MPDS), a licensed protocol sanctioned by the International Academy of Emergency Dispatch. Access to this protocol is granted only to employees who have successfully completed the Emergency Medical Dispatcher (EMD) course and passed the associated test. Following this, a practical training period ensues, conducted alongside an experienced EMD. The protocol is accompanied by a set of rules that EMDs must thoroughly understand and strictly adhere to in their work.

Quality management plays a pivotal role at Notruf Niederösterreich. Each month, a predetermined percentage of random calls taken by all employees undergo evaluation to guarantee adherence to expected standards and to maintain a specified level of compliance. These rigorous protocols, coupled with robust quality management practices constitute two crucial pillars that enable the successful implementation of remote work. In the absence of such protocols and quality management measures, remote work for employees would not be feasible in this operational context.

2. Implementation

The implementation of remote work dates to the start of Notruf Niederösterreich in 2003.

Throughout its history, back-office personnel have consistently enjoyed the flexibility of working remotely with a secure connection facilitated through a Virtual Private Network (VPN). Consequently, the staff of Notruf Niederösterreich has long been dispersed not only across the state but the entire country of Austria.

In 2017, Notruf Niederösterreich embarked on a pioneering project to provide health consultation services by phone, administered by registered nurses. This initiative led to an increased demand for workspaces equipped with telecommunication capabilities, ushering in the first substantial surge in remote work. During this phase, while active phone-shifts did not initially extend to remote arrangements, it facilitated the implementation of remote work for members of the quality assurance team. Contracts were formalized, and home offices were established, laying the groundwork for the remote work guidelines that are currently in effect.

The conception of the third phase of remote work at Notruf Niederösterreich was in the planning stage, when external circumstances accelerated the decision-making process. The global COVID-19 pandemic, which unfolded in 2020, necessitated a swifter than anticipated implementation of remote work capabilities for as many call takers as possible within the organization. To uphold social distancing measures and thereby mitigating the risk of infection while at work, the technical department undertook a substantial workload over several months. Their efforts culminated in the establishment of nearly one hundred home office spaces, facilitating the seamless transition to remote work for call takers.

2.1 Requirements for Employees

While remote work opportunities are currently available for back-office employees, call takers, emergency communication nurses and members of the quality assurance team, it is important to note that every dispatcher and supervisor shift, though technically possible to be fulfilled from a home office location, are presently restricted from doing so. This limitation is attributed to the nature of their roles, which necessitate their physical presence within the centers during scheduled shifts and this restriction extends to call taker nightshifts as well.

Notruf Niederösterreich has established stringent guidelines governing the implementation of remote work for its staff. Firstly, call taking employees must meet two key criteria: a minimum tenure of at least six months, equivalent to a full-time commitment and individuals must demonstrate a specific level of compliance with quality management standards to substantiate adherence to the organization's strict protocols. If an employee's quality compliance diminishes to a pre-defined point, while working from a home office, the privilege of remote work will be rescinded.

Upon meeting these prerequisites, eligible employees have the option to apply for a personalized remote work contract. This individualized agreement encompasses specific details relevant to each employee, incorporating information such as the address of their designated home office(s) and contractual specifics. The contract explicitly addresses several key considerations, including the term that travel time between the home office location and the central workplace is not deemed as working time. Furthermore, the document outlines the requisite specifications for the room in which the home office is set up and provides comprehensive information regarding data protection protocols.

2.2 Technical Aspects

Employees receive a set of equipment, which amounts to around €500 per person and includes thin clients, a webcam, a headset, a pager and all necessary cables and adapters. To facilitate the seamless setup of their home office spaces, a detailed instruction manual, complete with screenshots, is accessible on our internal information website, "LeoWiki". This resource empowers employees to independently configure their home office environments once they have fulfilled the other requirements and received the necessary materials.

Employees are required to provide their own mouse and keyboard; these items need not be purchased independently, as each employee receives them for their duties in the ECC center. Additionally, employees need to contribute essential materials to ensure the adequacy of their home office setup. Firstly, a screen is required, which can either consist of two screens, each with a minimum size of 22 inches, or a single curved screen of 48 inches to meet the requisite resolution for seamless operation of all programs. The provision of screens for home offices is not included in the provided equipment due to the significant influence they have on the aesthetic of the remote workspace. Employee preferences regarding the appearance of their home offices, such as the choice between two screens or one curved screen and the color of screen frame, etc. vary widely. Given the diversity of these preferences, it is impractical to accommodate every individual request. Consequently, employees desiring the flexibility to work remotely are required to procure these screens independently. While this necessitates an initial investment on the part of the employee, it is noteworthy that such costs are partially eligible for tax reductions in accordance with the prevailing regulations governing home office setups and associated purchases within the country. This aligns with the organization's adherence to

legal guidelines and the recognition of the financial implications for employees in establishing an effective home office environment.

Secondly, a stable internet connection with a minimum requirement of 5 megabits per second (MBits) and low latency is required to exist at the staff's home office location. LTE and 5G solutions are a possibility, satellite internet - excluding Starlink – is currently not permitted. The organization ensures a maximal network utilization of 100 MBits at the endpoint for its remote clients in the company therefore ensuring substantial bandwidth reserves. The decision not to furnish employees with internet for their home offices is not solely predicated on the presumption that 99% of them already possess home internet access. It is, in fact, a deliberate security measure. If the company were to provide internet services, it would be exclusively through a single provider. Opting for employees to utilize their existing home internet connection introduces a diverse array of providers spanning the entirety of the state and even the country. This strategic approach serves as a contingency, ensuring continued connectivity even if one of the providers experiences downtimes.

2.3 Security and Data Protection

The setup includes HTTPS tunnelling and implements a two-factor authentication with one-time tokens ensuring user data confidentiality. The two-factor authentication process is for each login procedure. Throughout a remote work shift, employees use their unique passwords to generate an additional login password required for accessing the virtual machine software (VMWare) which in turn provides access to all required programs. This secondary password is not transmitted through SMS but rather through a company-internal application installed on employees' mobile phones, requiring a one-time registration during the first use, which in turn provides additional levels of security.

While a local hosting setup is implemented, cloud-based hosting is a potential option, although currently not utilized by Notruf Niederösterreich.

To ensure compliance with the requirement outlined in the contract of a dedicated room for remote work, employees are mandated to utilize the provided webcams when initiating internal calls with fellow colleagues. This measure is in place to monitor and uphold the prescribed working environment standards during remote work sessions. A supervisor can call employees randomly and immediately see, that they are in fact alone in a designated room. In the contract it is also documented, that (should the need arise) the home office set-up might require a visitation to ensure the standard is upheld, though this has not been necessary so far. Due to the 6-month employment status requirement in order to apply for a remote work contract, the managers already know if an employee is well enough organized, trustworthy and thorough enough to receive the privilege of remote work capabilities.

3. Challenges and Solutions

3.1 Technical Aspects

During the formulation and implementation of Notruf Niederösterreich's remote work policies, the most challenging phase was encountered during the quick establishment of home office spaces amid the COVID-19 pandemic. While the challenges of configuring the physical spaces and gathering employee consensus on the strict requirements were easily navigated, the biggest hurdle proved to be the procurement of essential hardware. In the wake of the global shift toward remote work, with many industries adopting this practice where feasible, the demand for home office equipment surged. This heightened demand led to widespread shortages, increased prices and extended waiting periods for hardware, impacting both the organization-provided equipment and the devices individual staff members needed to acquire, such as screens. The scarcity of available hardware posed a significant logistical challenge during this transitional period and was only overcome by waiting for products to become available and using limited units from storage when possible.

3.2 Effects on Employees

Remote work offers employees certain advantages; however as is inherent with any situation, there are multifaceted considerations. Numerous studies have elucidated the positive aspect of a quieter working environment in home offices compared to the dynamic setting of a call center. Conversely, the downside encompasses potential challenges such as heightened isolation and loneliness[1], potential imbalances in work-life balance[2], family conflict[3] and additional adverse effects. These ramifications mainly extend beyond the working conditions at Notruf Niederösterreich and may manifest as prolonged working hours, which might only concern back-office employees as the rest of the staff strictly adheres to scheduled shifts regardless of their location, be it at home or within the ECC center.

Conducting research within the ECC and engaging with home-office employees has revealed that the most frequently cited negative aspects of working remotely include feelings of loneliness and the difficulty in disengaging from work. The latter challenge is attributed to the home office setup, where professional and personal spaces coexist within an individual's residence, making it intricate to establish a clear line between work and private life.

To mitigate the negative side effects experienced by employees, Notruf Niederösterreich has implemented several proactive measures. Particularly, during the COVID-19 pandemic, the organization initiated regular online meetings and even "parties" such as an online Christmas party for all staff members. These sessions were sometimes tailored to specific positions, such as call takers and dispatchers, as well as inclusive virtual gatherings where all 300 employees were invited. Within these forums updates on events and critical information were disseminated, providing employees with the opportunity to seek clarification, pose inquiries and virtually see their colleagues. Furthermore, smaller groups, organized along the lines of call center locations, actively arranged periodic online meetings. These more intimate sessions served to discuss internal news and foster open communication among team members within the organization.

[1] (Deschênes, 2022)
[2] (Rapo, 2022)
[3] (Greenhaus et al., 2006)

The AKUT Team, an integral component of the organization and comprising professionals such as psychologists and social workers, plays a crucial role in aiding members of the public facing acute psychological challenges. Notably, this team extends its support to employees who may be experiencing isolation, acknowledging the importance of addressing psychological well-being within the workforce. Their specialized expertise is instrumental in offering guidance and assistance during times of acute psychological distress (which was mentioned by staff frequently during the COVID-19 pandemic), contributing to the overall welfare of both the public and the organization's personnel.

Since the COVID-19 pandemic has ended in Austria, Notruf Niederösterreich has reinstated established protocols aimed at alleviating feelings of isolation and loneliness, fostering an enhanced work-life balance and ensuring equitable engagement of all employees. To achieve these objectives, a minimum requirement of four shifts within the call center has been reinstated. Certain shifts, notably those with extended durations such as night shifts or other 12-hour shifts, continue to necessitate on-site presence within the center. This strategic approach is designed to maintain a cohesive team dynamic, promote employee well-being and prevent any team member from being inadvertently excluded from the collaborative work environment.

3.3 Ensuring Smooth Working Capabilities

To guarantee seamless operational capabilities for employees, the configuration of computers within both the ECC center and home offices is standardized. When employees sign off, the desktop pool on all computers is reset after each usage, ensuring a clean and standardized image restart with every login. Although employees initiate some programs through slightly different processes when working from a remote location, Notruf Niederösterreich has always had comprehensive checklists for the commencement and conclusion of each shift, applicable to call taker, dispatchers, supervisors, and others. These checklists mandate adherence for every login and logoff, ensuring the proper execution of all required programs. The existence of these meticulous checklists eliminates the necessity for specialized guidance or training when transitioning to a home office setting, as employees can readily follow these detailed step-by-step instructions provided.

Einstieg707 - Beginn CCA/EMD Homeoffice

Nr.	Ziel-gruppe	Ort	Beschreibung/Erledigung	Sollzustand
1	CCA EMD	lokal (ei-gener PC)	Jabber am lokalen PC starten	gestartet
2	CCA EMD	lokal (ei-gener PC)	Headset anstecken	angesteckt
3	CCA EMD	lokal (ei-gener PC)	VM-Ware starten	erledigt
4	CCA EMD	VM-Ware	Telefonieansicht starten	gestartet
5	CCA EMD	VM-Ware	E-Mails NNÖ checken - NEWS?	erledigt
6	CCA EMD	VM-Ware	Aktuelle Änderungen checken - neue Änderungen verfügbar?	erledigt

It is important to provide the possibility for staff to plan breaks accordingly as, unlike in the ECC center, where breaks can be synchronized easily, remote employees lack visual cues about their colleague's availability. Notruf Niederösterreich has successfully addressed this by providing a dedicated site that

remotely displays information necessary, such as the number of employees on break, those handling calls, call queues and waiting time statistics. This transparent communication aids staff in planning their breaks effectively.

Skill	Anzahl	max. Wartezeit
keine Wartezeiten		
wartende und aktuell bearbeitete ECNS-Events: 1		

Anruferdaten
Ergebnis nicht vorhanden

	Name						Klappe	Status seit	Status	Dir.	Service	Skill	IN	OUT	Gesprächszeit	CTI
Mödling (7) -																
EMD								00:00:35	Talking	IN	144 Korneuburg	Notruf_144	42	9	01:31:49	1.5.18-beta
CCA								00:01:11	Ready				40	23	01:12:26	1.5.17-105
ECN								00:00:07	Ready				12	6	00:55:06	1.5.17-105
DIS								00:00:07	Work Ready	IN	von MA/Fzg aus Bez BL-BN	Dispo_BL_BN	34	31	03:46:13	1.5.17-105
DIS								00:00:11	Ready				41	38	17:36:41	1.5.17-105
DIS								00:04:51	Ready				21	26	00:31:08	1.5.17-105
DIS								00:09:39	Not Ready				23	32	00:56:07	1.5.17-105
St. Pölten (14) -																
CCA								00:01:11	Ready				57	15	02:07:33	1.5.17-105
EMD								00:01:17	Ready				42	17	01:24:25	1.5.17-105
CCA								00:01:59	Ready				45	20	02:08:16	1.5.17-105
CCA								00:02:21	Not Ready				49	20	01:38:00	1.5.17-105
CCA					C			00:02:25	Not Ready				42	44	01:20:52	1.5.17-105
CCA								00:02:29	Ready				48	23	05:29:53	1.5.17-105
CCA								00:03:35	Not Ready				33	13	02:03:48	1.5.17-105
CCA								00:04:39	Talking	IN	14844 RK Krankentransport	Krankentransport	54	28	02:00:11	1.5.17-105
EMD								00:14:03	Ready				42	12	13:24:07	1.5.18-beta
EMD								00:16:33	Ready				16	6	00:42:02	
DIS								00:00:43	Talking	IN	von MA/Fzg aus Bez ME-SB	Dispo_ME_SB	39	38	01:04:33	1.5.17-105
DIS								00:02:57	Ready				39	27	04:21:20	1.5.18-beta
DIS								00:03:39	Ready				26	41	01:01:44	1.5.17-105
DIS			E			P		00:23:27	Not Ready				1	3	00:01:30	1.5.18-beta
Stockerau (8) -																
CCA								00:00:35	Ready				42	29	00:11:59	1.5.17-105
CCA								00:01:28	Not Ready				40	18	01:23:35	1.5.17-105
CCA								00:01:36	Not Ready				47	18	01:57:15	1.5.17-105
EMD								00:04:40	Ready				46	15	02:04:50	1.5.17-105
DIS								00:00:35	Work Ready	IN		Dispo_GF_MI	55	48	01:20:03	1.5.17-105
DIS								00:01:13	Not Ready				25	26	04:13:38	1.5.17-105
DIS								00:02:07	Ready				53	28	18:10:57	1.5.17-105
DIS								00:06:37	Ready				38	61	06:49:11	1.5.17-105
Zwettl (6) -																
ECN								00:01:27	Ready				14	1	02:46:01	1.5.17-105
CCA								00:01:21	Ready				50	17	01:33:54	1.5.17-105
CCA								00:02:41	Talking	IN	14844 RK Krankentransport	Krankentransport	51	16	01:45:18	1.5.17-105
CCA								00:03:07	Ready				35	14	01:29:33	1.5.17-105
EMD								00:17:05	Ready				47	12	01:45:22	1.5.17-105
DIS								00:03:39	Ready				28	28	00:39:10	1.5.18-beta
Homeoffice CCA (3)																
KO								00:01:17	Ready				37	16	01:19:43	1.5.17-105
MD								00:02:25	Talking	IN	14844 RK Krankentransport	Krankentransport	41	12	01:31:22	1.5.17-105
PL								00:03:31	Ready				56	21	02:25:32	1.5.17-105
Homeoffice EMD (6)																
KO			E					00:09:10	Ready				34	13	00:49:19	1.5.17-105
MD								00:07:01	Ready				33	7	01:18:28	1.5.17-105
MD								00:14:25	Ready				29	4	00:23:18	1.5.17-105
PL				F				00:05:25	Ready				37	8	01:46:18	1.5.17-105
PL				F				00:10:37	Ready				28	7	00:28:21	
PL								00:00:45	Not Ready				16	24	00:41:47	1.5.17-105
Homeoffice ECN (2)																
								00:03:23	Talking	OUT			13	1	02:14:00	1.5.17-105
								00:05:05	Ready				12	0	01:46:00	1.5.17-105
Supervisor																
			E					00:24:45	Ready				15	27	00:39:04	1.5.18-beta

4. Impact and Results

4.1 Security

In extending the option for remote work, Notruf Niederösterreich not only aims to set a global precedent for its viability in the emergency response department but also strategically serves a security purpose. The diversification of employee work locations beyond the four well-established, well known and easily identifiable centers serves as a contingency plan in the event of an attack on the physical centers. The distributed approach ensures a robust backup system, as employees utilize various internet providers. The resulting diversity in internet connections contributes to a more resilient backup infrastructure, surpassing the redundancy provided by a single ECC center with a primary and possibly a backup internet connection. This strategic deployment aligns with security measures to enhance resilience and continuity in critical operations.

4.2 Employees

Staff has reported notable benefits associated with remote work, citing reduced fatigue and decreased likelihood of ending their shifts with headaches. This positive outcome is attributed to the absence of the constant ambient noise prevalent in traditional call center environments. The quieter working conditions in home offices can contribute to a more conducive atmosphere, allowing staff to experience less physical strain and lower likelihood of common workplace-related discomforts. This underscores the potential advantages of remote work in enhancing the overall well-being and comfort of employees at Notruf Niederösterreich.

A limited-scale study comparing the quality compliance of call takers at Notruf Niederösterreich, both before and after the introduction of remote work, has yielded some perhaps noteworthy findings. The research suggests the possibility of a slight decrease in the quality of work while call takers operated from home offices. However, this decrease is of minimal significance from a statistical perspective, registering at less than 0.7% across nearly 6000 cases reviewed over five months within the ECC center and five months in home offices. It is important to contextualize this slight decrease, considering the study period of the home office cases coincided with the height of the pandemic, during which call takers experienced heightened workloads, overtime, longer shifts and less work-life balance. While some employees exhibit statistically insignificant decreases in quality, a few others demonstrated an opposing trend, elevating their quality to an even statistically relevant degree. Upon investigating the perceived reasons for these variations, the absence of ambient noise in the home environment emerged as the most significant positive factor, enhancing concentration and adherence to established protocols.

This suggests that the impact of remote work on quality is variable, dependent on individual employees, their home environments and specific work and caller volume conditions. Organizations contemplating remote work for call takers therefore need to have a well-established quality management team and must remain vigilant, regularly monitoring the quality of work to adapt strategies accordingly. Employees must also be aware of the consequences and when those come into effect should quality decrease to a certain point. It is significant to note that, over the course of four years since the implementation of home offices for call takers, not a single instance has occurred wherein the privilege of remote work has been revoked due to a decline in quality. This underscores the sustained commitment to maintaining and upholding the high standards of service delivery, even in the context of a decentralized work environment.

4.3 Environmental Impact

The average distance travelled by a Notruf Niederösterreich employee for a trip to work and then again back home is 40km for four to five shifts per week. For those commuting by public transportation, the option might not always be feasible, especially for early starting or late ending shifts. Introducing the opportunity for remote work holds the potential to significantly reduce the ecological footprint of each employee.

As an actual ecological footprint calculation would greatly differ according to a car's fuel type and fuel efficiency, public transportation and more, it is easier to show the ecological potential by calculating a reduction in kilometers traveled. For this scenario numbers are estimated to reflect the current situation at Notruf Niederösterreich where a quarter of the staff can work from home.

$$shifts\ per\ week\ x\ weeks\ per\ month\ x\ 25\%\ of\ all\ employees\ x\ km\ distance\ per\ shift$$

$$= km\ not\ travelled$$

$$4.5\ x\ 4.33\ x\ 75\ x\ 80$$

$$= \mathbf{116,910\ km}$$

Based on the calculation and assumptions provided earlier, it was estimated, that each employee participating in remote work could reduce their monthly commute distance by over 1,500km. Extrapolating this reduction to a quarter of Notruf Niederösterreich's staff, it shows that the collective reduction in commuting distance could be significant, totaling over 110,000 kilometers each month alone, should all shifts for call takers be fulfilled from home offices. This calculation must be further adapted to the amount of time employees actually spend working from home offices, which can be just a few days a month to the majority of their shifts.

This figure represents the potential environmental impacts of implementing remote work, and as Notruf Niederösterreich continues to grow, this number is expected to increase. The adoption of remote work not only has benefits for employee well-being and work efficiency but also contributes to a positive environmental outcome by reducing overall commuting distance and, consequently, the ecological footprint associated with transportation as it is simply not necessary.

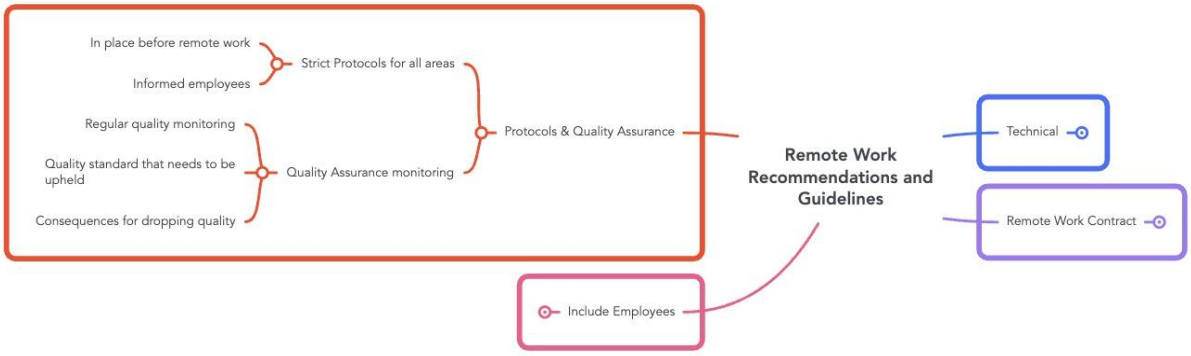
4.4 Availability

In situations involving mass casualty events, special occasions, or specific hours with expected increased call volumes (e.g. New Year's Eve or press conferences during the COVID-19 pandemic), Notruf Niederösterreich has established a mechanism of promptly being able to mobilize additional support and remote work plays a crucial role in making this support available within minutes, rather than hours. This is achieved by sending out an alert through the organization's internal app or pagers, requesting employees at home and time-wise available to assist the ECC center on short notice. While this contingency is infrequently employed and always regarded as a last resort, it serves as a valuable option to rapidly augment the workforce, ensuring a swift response to heightened demand in often (but not always) unplanned situations. Remote work and home offices enhance the organization's agility by enabling the availability of additional personnel, a measure deemed essential in critical and time-sensitive situations.

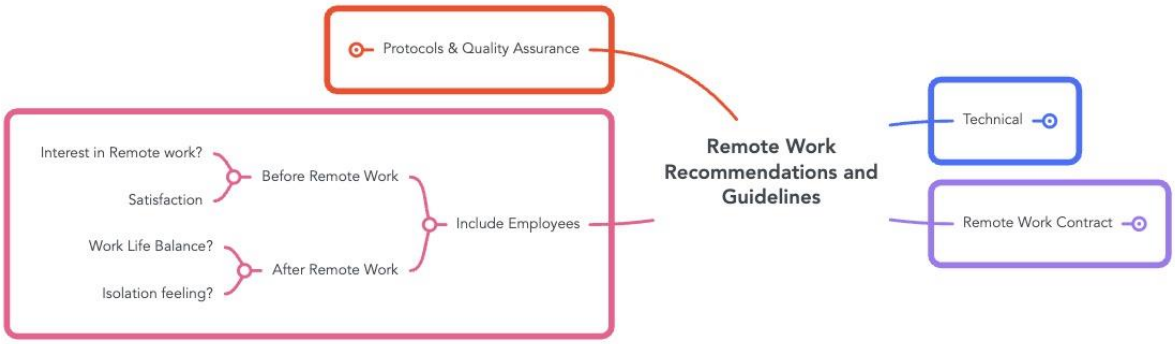
Certainly, the utilization of home offices provides a valuable mechanism for swiftly addressing unforeseen challenges, such as the absence of call takers due to sickness or other unplanned situations. In instances where employees planned for or already at work fall ill and leave, the need for prompt replacement becomes critical to maintain short waiting times for callers. In such scenarios, the flexibility afforded by remote work becomes particularly advantageous. Shift planners can contact available employees, and those with capacity can contribute from their home environment much quicker than if they had to first make the trip to work. Conversations with employees working from home offices has shown that some are more inclined to assist in unplanned shifts if they can fulfill these from their home.

5. Recommendations

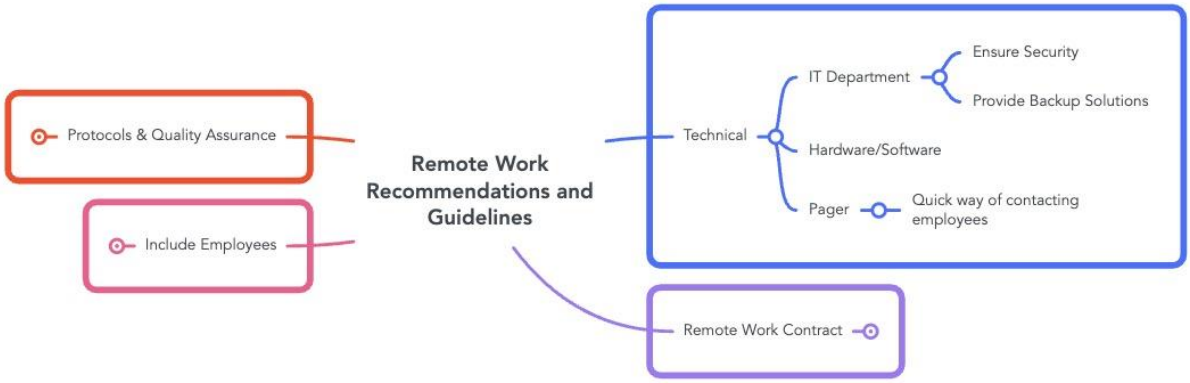
After successfully navigating the uncharted territory of establishing remote work capabilities in emergency response without precedents in other ECCs, Notruf Niederösterreich has established a set of four comprehensive guidelines and recommendations for organizations seeking to establish remote working capabilities for their employees.



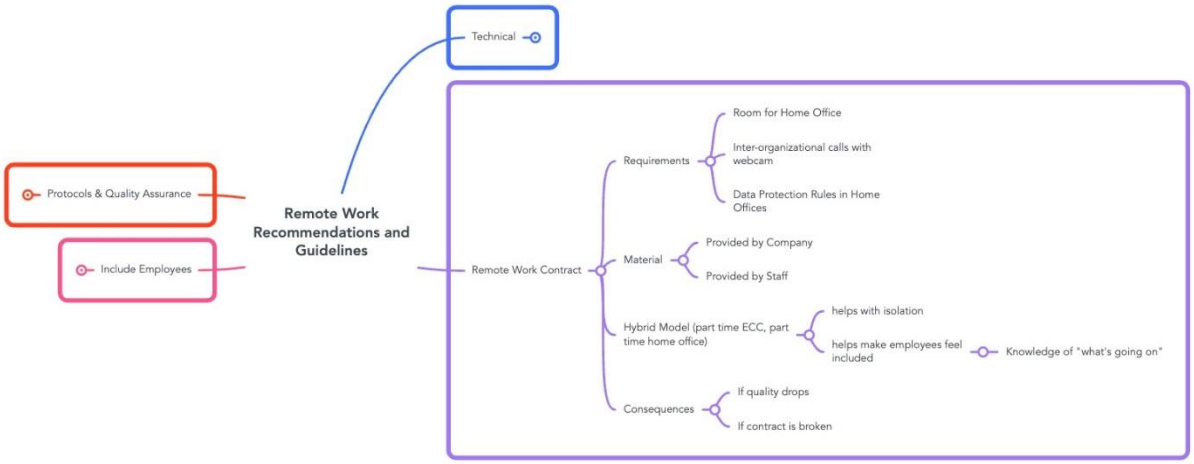
1. **The establishment of explicit protocols for employees to adhere to, supported by a robust quality assurance team, tasked with monitoring, and maintaining the current quality standards**. Anticipating the consequences of potential declines in quality is essential and should be tailored to the specific work environment, whether it be a home office or the ECC.



2. **The inclusion of employees in the decision-making process is paramount.** If the existing workforce demonstrates limited interest in remote work capabilities, introducing such a program may lack significance for an ECC. Conversely, overlooking clear employee interest in remote work could result in increased turnover, as staff may seek alternative workplaces that offer such capabilities.



3. **A well-equipped IT department of sufficient size is imperative if an ECC wants to avoid outsourcing help for a project of this size.** It needs to ensure the security, provisions of essential materials and backup solutions required for remote work. Additionally, they should establish efficient communication channels with employees in home offices, potentially utilizing tools such as pagers for quick and reliable contact.



4. **Finally, a comprehensive work contract, including all the aforementioned facets needs to be drawn up.** This contractual document lists all prerequisites for home offices, commencing with the employee's employment status, quality standards, room requirements and requisite materials (whether provided by the organization or the staff). Additionally, the contract stipulates stringent adherence to data protection regulations in alignment with prevailing laws. Critical decisions concerning the allocation of work hours between home offices and the ECC center are articulated within the contract. Notruf Niederösterreich strongly advocates for a hybrid model, balancing home-based work and on-site presence as it effectively addresses the concerns related to isolation feeling and knowledge sharing. Moreover, the contract addresses repercussions in the event of a decline in employee performance or broken contracts emphasizing the importance of clear delineation and consequences. By meticulously outlining the terms and conditions, this contract serves as a foundational document ensuring that remote work aligns seamlessly with the organization's operational objectives, regulatory obligations, and commitment to maintain high-quality emergency response services.

6. Conclusion

The transition to remote work at Notruf Niederösterreich brought forth a series of challenges, prompting the development of solutions and valuable lessons that can be shared with other companies and organizations contemplating a similar change.

Ensuring that robust technical security measures and data protection protocols are in place, particularly when dealing with emergency communications is key. The foundations established within the ECC center should extend seamlessly to remote environments, as the same laws and regulations regarding data protection apply within the ECC center and home office.

Without stringent quality assurance protocols, to safeguard the quality of work when employees operate from home, a remote work environment should not be considered. Quality management ensures that service standards are upheld, and if a decline in quality is observed, there is a need for a pre-established improvement plan to guide employees in elevating their performance back to better standards. At the same time, gathering regular feedback from employees (through questionnaires or employee orientation meetings) can enhance their well-being with remote work and potentially reduce employee turnover as it gives an organization the chance to proactively respond and contribute to higher job satisfaction.

In summary, when meticulously planned and executed with thoughtful consideration and continuous feedback from staff, the strategic implementation of remote work can significantly enhance the operations of emergency command and control centers. The availability of home offices may attract a broader pool of applicants and contribute to higher employee retention rates. While the ecological footprint on an individual level may seem modest, the cumulative impact across organizations worldwide is noteworthy. As more organizations deliberate on integrating remote work options, the potential positive influence on global sustainability efforts becomes more pronounced. Furthermore, the capability to address unforeseen staffing gaps contributes to the operational responsiveness swiftly and effectively of Notruf Niederösterreich, ensuring unwavering support for emergency call handling – a challenge encountered by many ECCs at various junctures.