

A child with their back to the camera, wearing a green vest over a blue and pink striped long-sleeve shirt and blue pants, stands in a field of tall grass. Their arms are raised in a celebratory gesture. The background is a bright sunset or sunrise over a valley, with the sun low on the horizon, creating a warm, golden glow. The child's shadow is cast on the ground in front of them.

# neuroCare Group

[www.neurocaregroup.com](http://www.neurocaregroup.com)

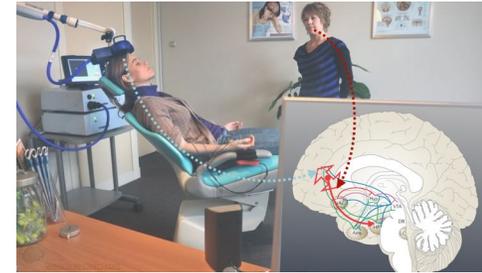
AUGUST 2016

Company Introduction

neuroCare The logo graphic for neuroCare, featuring a stylized, multi-colored (blue, green, orange) waveform or ECG line that starts on the left and ends with a horizontal line on the right.

# Overview

- ▶ neuroCare is at the forefront of using our brain's plasticity and neuromodulation technology to accelerate learning in medical healing and in performance improvement.
- ▶ neuroCare currently provides drug and side effect free therapy for neurological disorders such as in Mental Health, Pain and Rehabilitation. Our efficiency is scientifically proven and published.
- ▶ neuroCare is vertically integrated: we operate clinics, develop leading technology, offer scientifically proven treatment protocols as well as education, supervision and exchange.
- ▶ Our focus is to address a large global patient population with a huge unmet need and unsatisfying solutions – ADHD, depression, chronic pain and rehabilitation post stroke / TBI.
- ▶ neuroCare is a commercial stage company: € 4MM+ revenue 2016 doubling during last 18 months since moving from the scientific into also serving the clinical markets.
- ▶ neuroCare is privately owned and managed by a team of leading clinicians, scientists, technology and business leaders. Headquarters in Germany with operations in USA and in Asia.



# What is brain plasticity ?

Brain plasticity (from the Greek word 'plastos' meaning molded) refers to the extraordinary ability of the brain to modify its own structure and function following changes within the body or in the external environment. The large outer layer of the brain, known as the cortex is especially able to make such modifications.

Brain plasticity underlies normal brain function such as our ability to learn and modify our behavior by forming new synaptic connections and patterns. It is strongest during childhood when the brain as such is still growing — explaining the fast learning abilities of kids — but remains a fundamental and significant lifelong property of the brain. Adult brain plasticity has been clearly implicated as a means for recovery from sensory-motor deprivation, peripheral injury, and brain injury. It has also been implicated in alleviating chronic pain and the development of the ability to use prosthetic devices such as robotic arms for paraplegics, or artificial hearing and seeing devices for the deaf and blind.

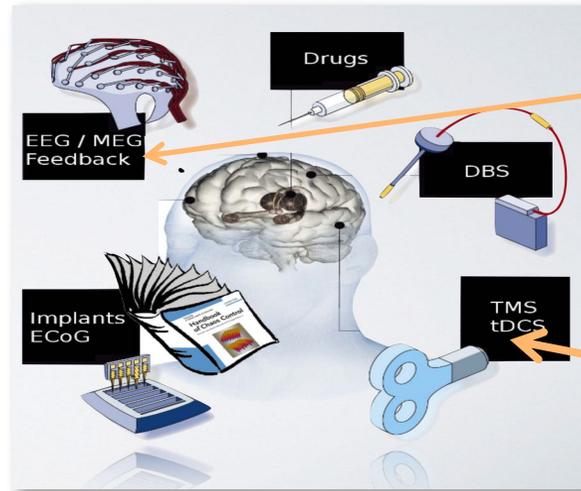
In recent years, brain plasticity has been implicated in the relief of various psychiatric and neurodegenerative disorders both in humans and in animal models. These disorders include obsession, depression, compulsion, psychosocial stress, Alzheimer's disease, and Parkinson's disease. Furthermore, recent research suggests that the pathology of some of these devastating disorders is associated with the loss of plasticity. Collectively, there is a growing recognition that brain plasticity plays a fundamental role in either the deterioration to, or the alleviation of, psychiatric and degenerative brain disorders.

*Source: Society for Neuroscience*

# What is Neuromodulation?

“Neuromodulation is the alteration of nerve activity through the application of electrical impulses or pharmaceutical agents delivered direct to relatively focal brain area”

- Harvard Neuromodulation



At neuroCare, we only work with non invasive Neuromodulation.

There is no / much fewer side effects and lasting outcomes instead of symptom management than with other forms of Neuromodulation.

## Endogenous (Working inside out) Neurofeedback

- Measures and feeds back brainwaves
- Success depends on clarity of signals measured
- Enables self learning for behavioural therapy
- Therapists can supervise via second monitor
- Cost effective and scalable
- Home therapy possible

## Exogenous (Working outside-in)

### Transcranial Magnetic Stimulation (TMS)

- Stimulates Cortex via magnetic fields
- FDA approved for depression
- Expensive equipment (40k USD plus)

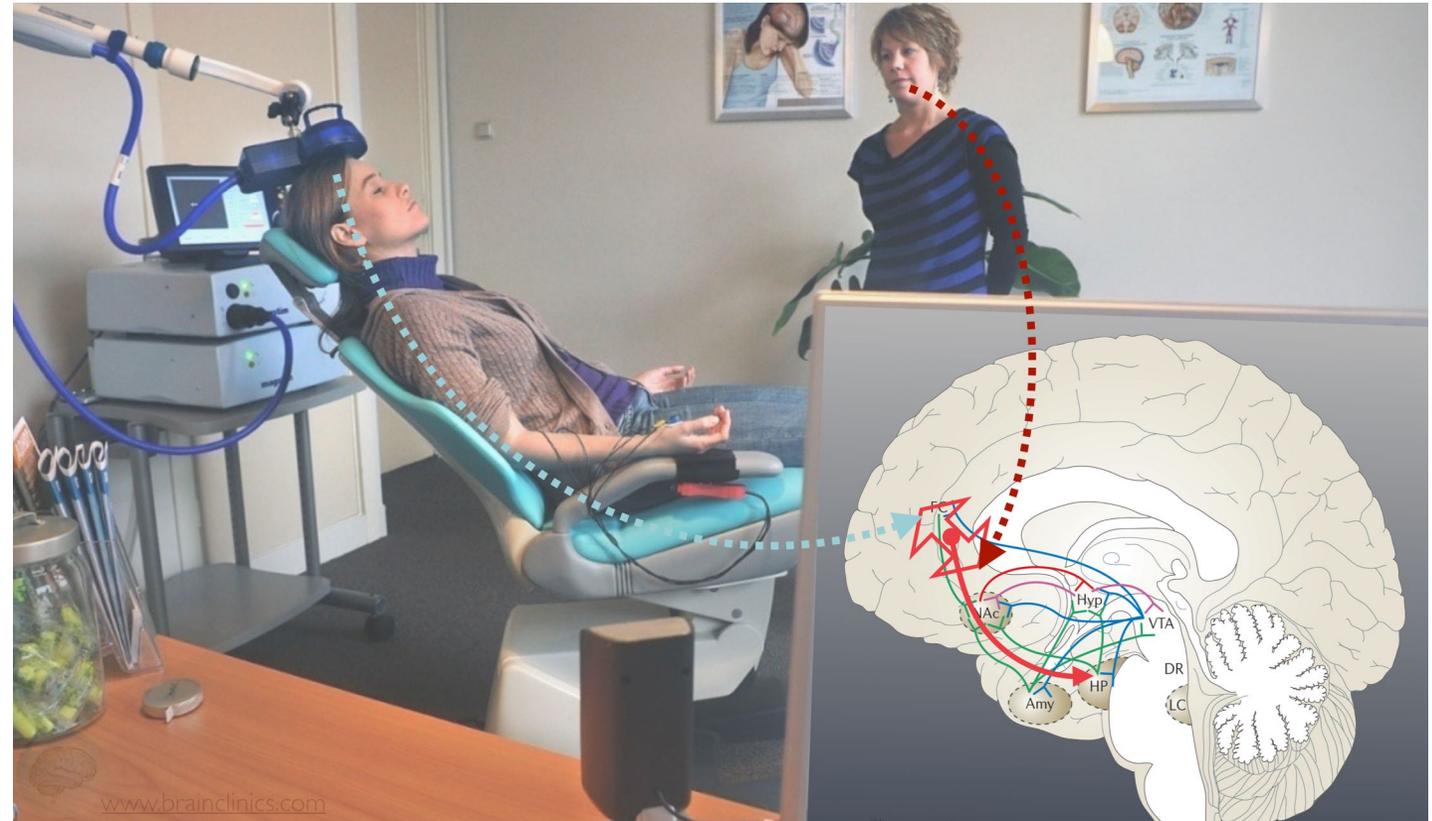
### Transcranial Direct Current Stimulation (tDCS)

- Modulates cortex via mild electrical current
- Inexpensive, fast scalable, home therapy.



# Efficacy and Results of Neuromodulation at neuroCare

- Based on and driven by our model of integrated care and personalized treatment
- Therapist and technology work in synergy
- neuroCare rTMS protocol strengthens the brain network connectivity (stimulation) **as well as** restores brain activity (conditioning)
- **ONLY WITH THESE PRINCIPLES WORKING TOGETHER OUR EFFICACY CAN BE ACHIEVED**



# Unmet Market Need: Neurological Disorders\*

- ▶ Neuropsychiatric conditions #2 global burden of disease worldwide, and #1 in Europe
- ▶ Most chronic disorders in Europe: Depression #1 - Anxiety including obsessive compulsive disorder(OCD) #6
- ▶ Depression: ca. 400 million worldwide, ca. 1 million suicides annually

## Depression

Every year, about **1 out of 15** people suffer from major depression in the WHO European Region



If anxiety and all forms of depression are included, nearly **4 out of 15** people are affected



- ▶ Attention Deficit and Hyperactivity Disorder: 36 million global (Whiteford et al. 2015)
- ▶ Ca. 2 Billion people suffer from chronic headaches/migraines worldwide
- ▶ Ca. 15 million people suffer a stroke p.a. Five million are left disabled, making it the second leading cause of disability include loss of vision and/or speech, paralysis and confusion.

\* WHO statistics

# An unmet need

## ▶ Drugs do not deliver/ Impact of drugs is not satisfying

- Management of symptoms and not a cure – only short term benefits
- Depression: ca.60% of patients don't respond to the first drug and ca. 30 % still don't respond to their 4th course of drugs\*.
- ADHD: **Ritalin loses its effect after ~2 years** (likely result of altered Dopamine Transporter)\*
- Above does not yet account for discontinuation of drugs in mental health due to **significant side effects: large public policy issues**
- Drug companies suspended their R&D for CNS/psychiatry and hence drug pipelines are dried up

## ▶ All above is leading to *an accelerating paradigm change in psychiatry:*

- Neuromodulation and device based therapies with the right protocols and prognostics have demonstrated good efficacy\*
- Personalized 'biomarker driven' care and evidence based approaches are rising
- Neurotherapies integrated with cognitive therapy show best efficacy, e.g.. 76% for Neurofeedback in ADHD or 78% for rTMS in Depression \* - that is the neuroCare approach and result!

# Our Integrated Business

neuroCare integrates **neuromodulation technologies into diagnosis and therapy**. We respond to the **key requirements** in today's healthcare:

- Non-invasive, fewer side effects and lasting outcomes. Integration with other approaches (drugs or cognitive therapy)
- Vertical integration via specialist practices / centers for neurological health therapies
- More ambulant / home based therapy possible through remote monitoring and mobile devices
- Proven 10+ year track record



**World leader in measuring/modulating brain activity with unique technology features.**

- Our neurofeedback is focused on validated protocols such as SMR, SMP and SCP (slow cortical potentials) for treating ADHD.
- We are the pioneer and leading brand in transcranial electric stimulation (tDCs or tACs) and in associated research worldwide.
- Our technology is used clinically in pain and rehabilitation through Own Equipment Manufacturers (OEM)



**Personalized and integrated care for patients with**

- ADHD (76% proven efficacy)
- Depression (78% proven efficacy)
- Obsessive Compulsive Disorder (OCD, 55% efficacy)
- Chronic pain
- Rehabilitation post stroke
- Therapies developed over the last 15 years, at Brain clinics - now neuroCare clinics



**Science, evaluation and training in technology, care delivery and a global community.**

- Neurofeedback and –stimulation based on scientific protocols
- Personalization and QEEG reading
- Scientific evaluation/publishing of outcomes.
- **neuroLink** platform for supervision, case discussion, jobs and global followership
- Trained more than 500 professionals from more than 30 countries

# Achievements 2015 & Q2 2016

- ✓ Sales growth >40% (esp TheraPrax for ADHD), FC 2016: again ~ 40 % growth yoy
- ✓ Investments in new people, processes/IT and infrastructure. Company certified according to ISO 13485 !
- ✓ New CE mark for tDCS (depression, pain, stroke) and for TheraPrax (ADHD & Epilepsy)
- ✓ Global BCIA Accreditation of our new neuroCademy courses in Germany
- ✓ OEM contract for REHA and OEM contract for pain signed
- ✓ EMEA: office opened and clinic Munich start in March 2016, 2nd clinic in NL in Den Haag opened on Jan 1<sup>st</sup>
- ✓ RoW: offices opened and/or clinic projects visible in Europe, North America and Asia / Australia
- ✓ Building a strong team for global growth: 10+ new people globally. Leadership development started.

# neuroCare's Immediate Addressable Markets

Indication	Global Incidence	FOCUS countries of OECD	Private market penetration	Treatment per patient	Revenue/tx	Clinic Revenue
	mainly OECD countries people	15% people	0.50% people	30 treatments	average Euros	Potential Euro millions
ADHD	36,000,000	5,400,000	27,000	810,000	90.00	73
Depression (Affective Disorders)	350,000,000	52,500,000	262,500	7,875,000	120.00	945
Migraine/headache	2,000,000,000	300,000,000	1,500,000	15,000,000	50.00	750
Rehabilitation/stroke	5,000,000	750,000	3,750	112,500	100.00	11
						<b>1,779</b>

- In Europe, we focus on Holland, Germany and Switzerland, where Neurofeedback is already accepted. In Singapore we are building the private hub for Asia and in ANZ we have a hotbed of R&D and interest as well.
- First focus is on the private segments and 'early adopters' – patients and clinicians who search for neurotherapy and had negative experiences with current approaches. Usually the clinicians first search the web for training/technical backup.
- The **market potential is less the bottleneck than will be education**, hence our neuroCademy. Clinicians buy equipment and training.
- ADHD: neuroCare provides superior outcomes with **one-time costs of EUR 3,500-4,500** and little further treatment required. Existing drug focused therapies costing EUR 6,000 to 10,000 require ongoing treatment with diminishing effect over time.
- Depression in EU/private markets: neuroCare provides superior outcomes with **costs of EUR 4,500-5,000** and minimal follow up. Cost for the first(!) year of antidepressants is ~EUR4,300.- with average 4 years follow up.
- **Depression in US : all major insurance companies reimburse avg 300USD/tx (usually 25 sessions)**

# Our Diagnostic and Treatment Protocols

## Diagnostics/ Prognostics

### QEEG (Quantitative EEG)

Records electrical activity in brain

### ERP (Event Related Potentials)

Extracts more specific sensory, cognitive or motoric events

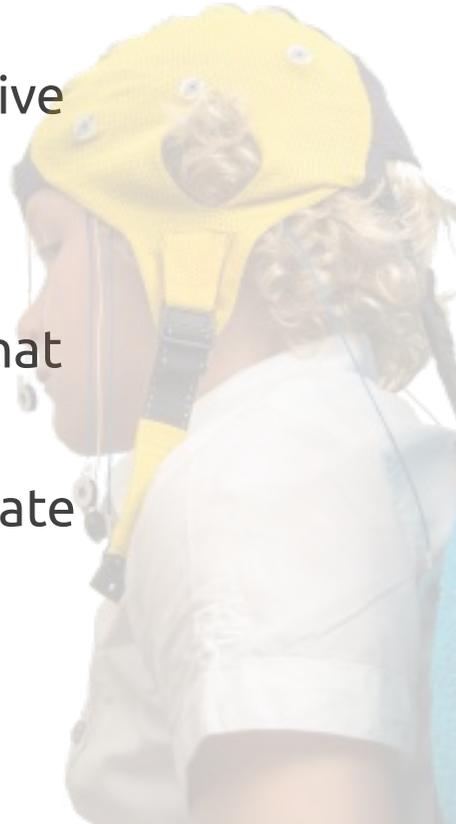
### Actigraphy (analysis of sleep)

- ▶ Gives a more detailed picture of what treatment is needed
- ▶ Allow validated approach to stimulate or to do new neurofeedback
- ▶ Can be compared with other data samples



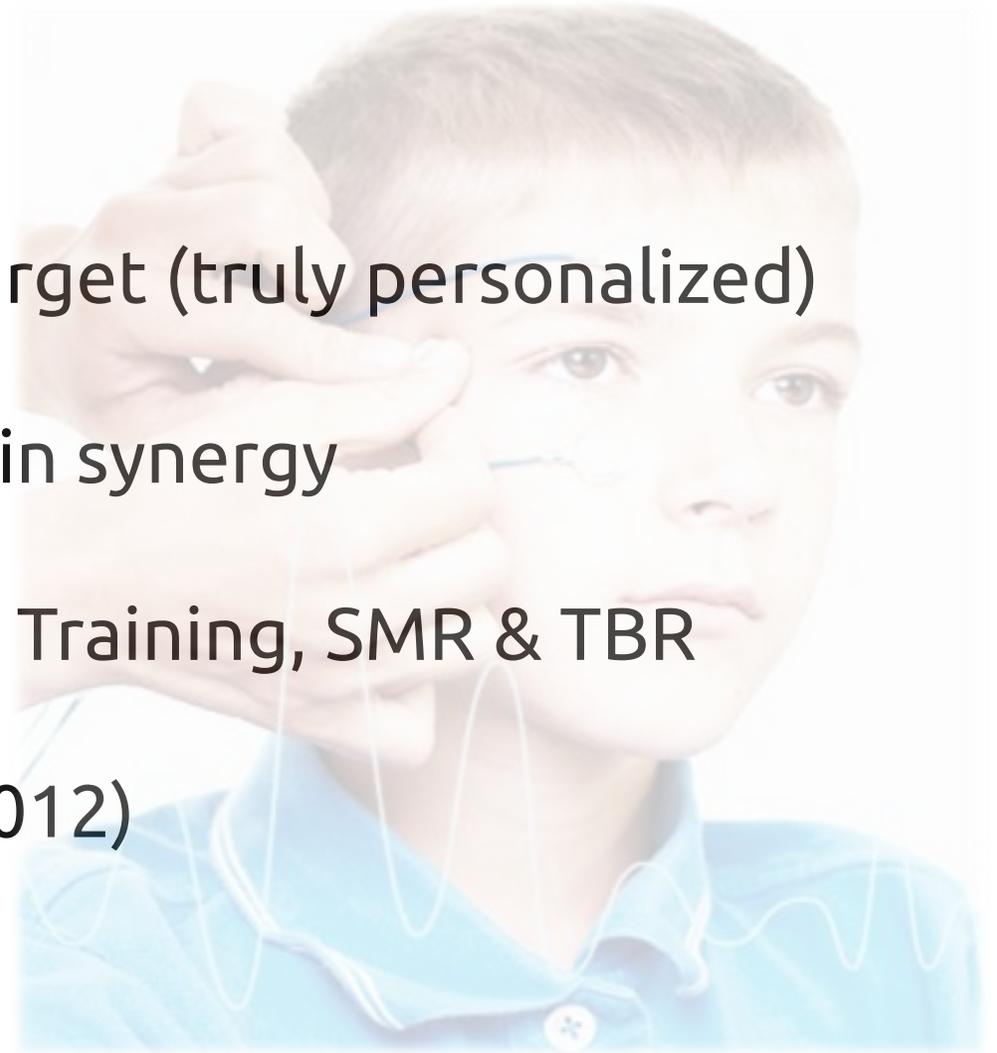
## Treatment protocols

- ▶ Based on neuropsychological testing, electrophysiological parameters
- ▶ Backed by scientific publications, studies
- ▶ Adapted to analysis of brainwaves
- ▶ Apply a specific pattern of stimulation
- ▶ Work with slow cortical potentials or use frequency band training depending on case



## neuroCare's unique approach for ADHD

- ▶ QEEG 'informed' Neurofeedback as target (truly personalized)
- ▶ Psychotherapy and neuromodulation in synergy
- ▶ Using 'evidence based' protocols: SCP Training, SMR & TBR
- ▶ Published efficacy: 76% (Arns et al., 2012)



## neuroCare's Unique Approach for Depression

- Psychotherapy and neuromodulation (rTMS or in future tDCS) in synergy!
- Using more cost effective (low frequency) rTMS equipment
- Published efficacy in depression: 78% (Arns et al., 2012)
- First interesting clinical data in OCD (55% efficacy)
- Future safeguarded with leadership in tDCS: doing a 150 patient multisite trial for tDCS in depression with the neuroCare mobile stimulator (home solution)

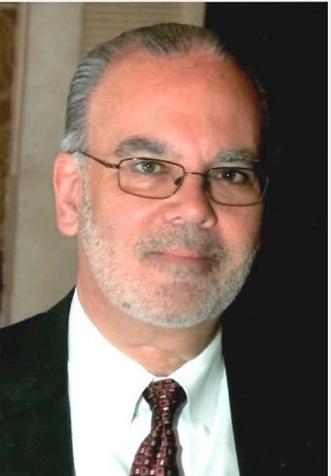
# Key Management



**Tom Mechtersheimer, Executive Chairman**, is an electrical engineer and graduated in economics. He is a health industry leader with 25+ years of experience. Tom started in Research at the Fraunhofer Institute in Germany and held various roles in Start-ups. He then worked for the Fresenius Group for 18 years, where he was a key leader in implementing vertical integration for Fresenius Medical Care and was last a member of the Management Board at Fresenius Kabi as President Asia Pacific.

Tom founded the Passion Investment Group that he owns and has deep experience in starting up markets from scratch, building successful teams and global businesses. His profound track record and his passion for leadership enable him to unlock the potential of innovations.

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**Stanford Miller, Regional Head & Managing Director North America**, was a pioneer for the clinical use of rTMS as a co-founder and senior executive at Neuronetics. He was instrumental in securing initial angel funding and the first several venture capital funding rounds at Neuronetics. He held a number of executive positions with responsibilities in marketing, reimbursement and business development and was a significant contributor to leading the transition of rTMS from the laboratory to the clinic for the treatment of patients suffering from major depression. He is also an inventor holding several patents in the non-invasive neuromodulation space.

Stanford is now leading the neuroCare Group's expansion into the US focusing on the development of their clinical services business as Managing Director of neuroCare Group America.

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# Key Management



**Martijn Arns, Chief Scientific Officer**, graduated as a biological psychologist and received his PhD on the topic of '*EEG-based personalized medicine for ADHD and depression*'. After several global research projects, he started his own Research Institute and his own Brainclinics in 2001. He is specialized in applying brain imaging techniques to determine the appropriate clinical treatment for patients.

Martijn pioneered the application of neurofeedback in ADHD/insomnia and rTMS in Depression/OCD. He is a leading expert on personalized medicine in ADHD and Depression and published more than 100 scientific articles. His clinical and scientific expertise has formed the basis of the neuroCare clinics and its quality management.

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**Klaus Schellhorn, Chief Technology Officer**, completed his studies as Diplom-Ingenieur in Electrical Engineering at the Technical University Ilmenau. Klaus is a neuroCare and neuroConn co-founder with a long-standing experience in neuromodulation technology and devices. He is responsible for R&D, Technology, Production and Quality Assurance.

Klaus has more than 15 years experience in overseeing global research projects and studies with global Key Opinion Leaders (KOL) and other industry insiders. Klaus is a globally well known and respected industry insider and technology developer in NeuroModulation.

[klaus.schellhorn@neurocaregroup.com](mailto:klaus.schellhorn@neurocaregroup.com)

# neuroCare - Rewarding All Stakeholders

- neuroCare is providing lasting therapy not symptom management
- neuroCare's integrated therapies come without side-effects
- neuroCare's therapies are more cost effective than existing approaches
- We serve all stakeholders: patients, clinicians, community, payers, investors

A child with their back to the camera, wearing a green puffer vest over a blue and pink striped long-sleeve shirt and blue pants. They have their arms raised in a celebratory gesture. They are standing in a field of tall, dry grasses. The background shows a sunset with a bright sun low on the horizon, casting a warm, golden glow over the scene. The sky is a mix of orange, yellow, and light blue.

Let's go Global !