

FROHNE LABEL PRESENTS:

RFID / NFC – NEW POSSIBILITIES FOR THE PHARMA- CEUTICAL INDUSTRY

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THE MARKET SITUATION

Promising ...

- » The global market for pharmaceutical products grew by about 6.9 percent every year since 2014. It's going to grow to approximately 1.61 trillion \$ in 2018. (EIU, Deloitte)

... but also challenging

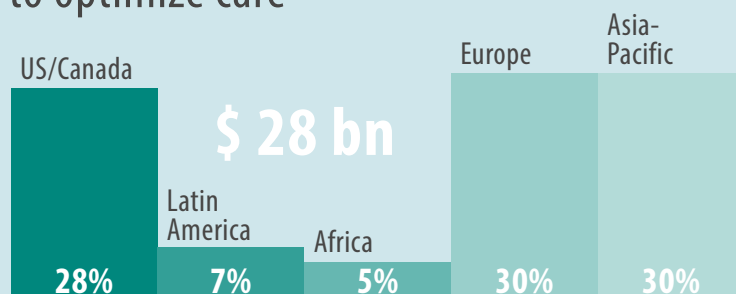
- » Rapid growth of counterfeit products: about 8 to 15 percent of all pharmaceutical products sold worldwide per year are counterfeits (WHO)
- » Increasing competition because of generics
- » Strict cost control programs by insurance companies and providers (price control, pro-generic policy, results-based care)
- » More empowered patients: informed, opinionated, price conscious, less loyal, ...

RFID/NFC – NEW POSSIBILITIES
FOR THE PHARMACEUTICAL INDUSTRY

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RISING OPPORTUNITY: MOBILE DEVICES AND THE CLOUD

- » Bringing patients, pharmaceutical companies, and physicians closer together than ever before
- » Consumers assume a better control over their health via apps, wearables and sensors
- » Physicians get mobile data access and receive patients' electronic health data stream (from EHRs, self monitoring tools) to optimize care



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**RFID/NFC – NEW POSSIBILITIES
FOR THE PHARMACEUTICAL INDUSTRY**

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NFC-ENABLED PHARMACEUTICAL PRODUCTS

- » **Can authenticate themselves**
unique IDs and cloud services
- » **Can be traced**
document history and origin
- » **Can share information and interact**
locally stored or via cloud

- » **Follow their product life cycle**
 - Ingredients
 - Temperature state
 - How to use
 - Reminders/
refill alerts
 - Dates of expiry



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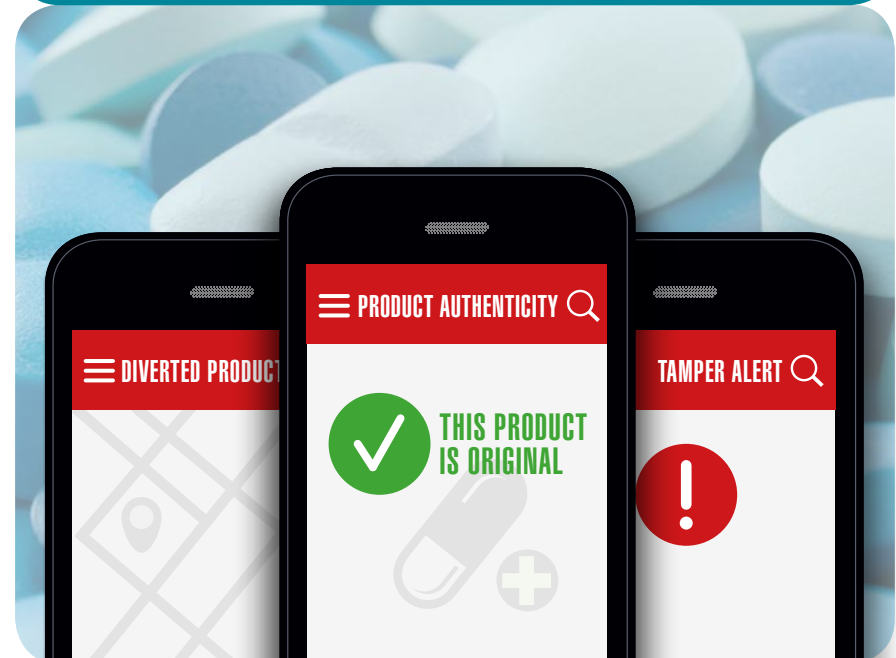
**RFID/NFC – NEW POSSIBILITIES
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NFC TO ENSURE PRODUCT SAFETY AND INTEGRITY

8 to 15 percent of all pharmaceutical products
sold worldwide every year are counterfeits (WHO)

- » Product verification nearly in real-time, everywhere in the world (anti-counterfeiting)
- » Visibility into illegitimate product movements (grey market control)
- » Tamper-proof seal



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**RFID/NFC – NEW POSSIBILITIES
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MORE PATIENTS ENGAGEMENT BECAUSE OF NFC

- » A never before possible bi-directional communication channel to guide and educate patients
- » Easy and instant access to product information (text, audio, video)
- » 24/7-services to help patients via apps and websites
- » Connections to doctors (hotlines, patient forums, ...)
- » Service optimization through situation analysis

**There are significant gaps between services
patients want and those they receive.
(Accenture, US)**



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NFC TO SUPPORT ADHERENCE TO TREATMENT

More than 50 percent of chronic disease patients do not adhere to therapy (WHO).
This often leads to hospitalizations.

- » Patients get reminders for the correct dosage
- » Pharmaceutical companies can receive adherence data for results-based care
- » Physicians can monitor and follow up the therapy



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NFC-ENABLED PRODUCT DELIVERY DEVICES



» NFC-enabled smartphone and apps in conjunction
with smart drug delivery devices

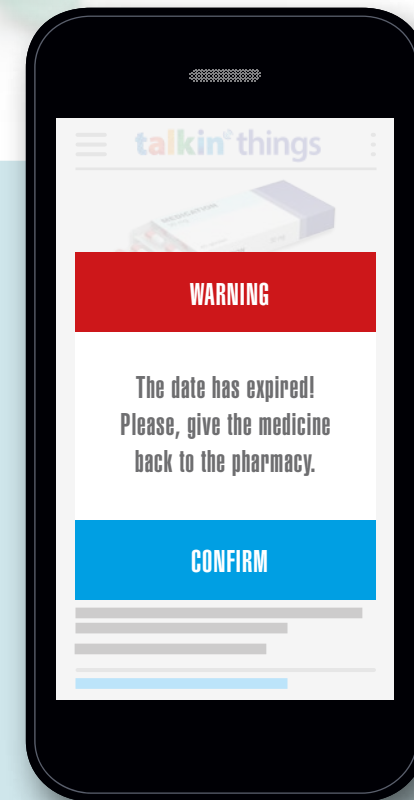
» NFC-tagged inhalers, injection pens etc. for dosage monitoring,
logging time and doses

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NFC FOR PHARMACOVIGILANCE

- » Pharmaceutical companies can inform patients about illegal channels or recalled products
- » Patients can report side effects to pharmaceutical companies
- » App/back-end system can inform patients about expired products



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NFC FOR AN OPTIMAL INTAKE PROGRAM

- » Glucose meters (with NFC readers) utilize NFC-tagged cartridges which use calibration codes to measure blood sugar
- » Adjusted device settings for correct insulin dose based on consumable intake: enhancement of patient safety and efficiency
- » Securing of accurate and timely replacements

“Companies can afford to give away the monitors for free because they make their money from the glucose strips.” (Health)



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**RFID/NFC – NEW POSSIBILITIES
FOR THE PHARMACEUTICAL INDUSTRY**

NFC FOR COLD-CHAIN CONTROL

- » Temperature monitoring at item level and quality control over the full logistics chain
- » traceable when and where a cold-chain incident happened; current state is unknown
- » readout and configuration with NFC-enabled phone, using apps and the cloud
- » Apps and tutorials help patients with the correct handling

The cold chain from the producing company to the pharmacies or to hospitals is ensured. But only about 7 percent of patients know how to maintain the cold chain properly. (University of Utrecht, 2015)

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TAMPER-PROOF TAGS

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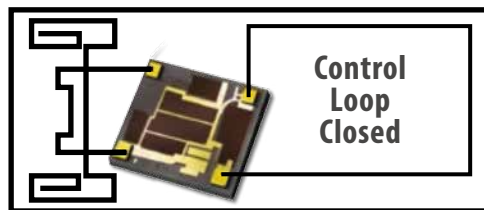
» Customer benefit

» Product feature

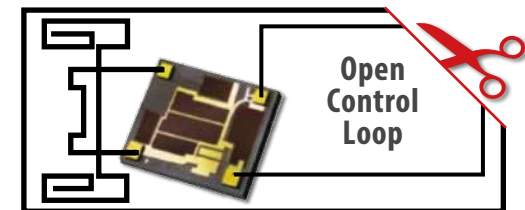
- » Detection of label relocation
- » Detection if packages have been opened

- » The chip sends an alarm if the label is manipulated.
- » The tamper alarm bit is a separate bit located in the configuration

No manipulation,
loop closed



Tag manipulation,
control loop open



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BRAND PROTECTION

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» Accurate,
automated
tracking along
the supply
chain



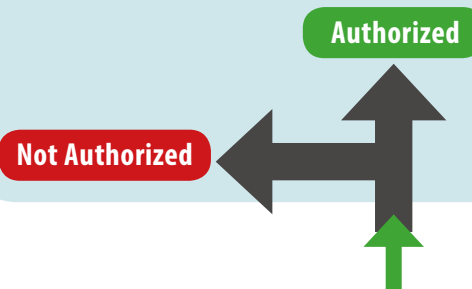
» Automated detection
of unauthorized
opening



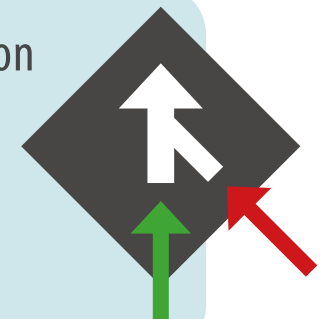
» Guarantee
of brand
protection



» Locating of unauthorized
channel diversions



» Easy identification
of counterfeit
products



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BROCHURES AND LABELS SMALL-SIZED GRANDNESS



BROCHURE



> BOOKLETS

- high page counts by good opacity to distribute large amounts of information
- variable in size and scope
- different label solutions can be equipped
- combi products with label or wrap
- targeted for specific requirements, more functionality, better handling

> OUTSERT

- with glue dots
- with closure labels
- with aqua scoring
- married outsert

> INSERT

- unfolded
- multi-folded leaflets

LABEL

> ADHESIVE LABELS

- labels as a bow and on a roll
- for trading units with small radii
- for thermal load
- with hologram
- with hot foil
- with Braille
- with special finishing
- varnished
- laminated
- no-label-look labels

> NFC / RFID

- to ensure safety & integrity protections
- to support adherence to treatment
- to build patients engagement
- for item-level control within the cold chain
- serialisation traceability on item level



Our
medical
paper
collection



**RFID/NFC – NEW POSSIBILITIES
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CONTACT INFORMATION



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