

Master's Thesis



AMMATTIKORKEAKOULU
University of Applied Sciences

A qualitative study on CBRN communication and culture in Finnish authorities

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Content of the presentation



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Photo source: Microsoft PowerPoint stock photo

CBRN

❖ C = Chemical

❖ B = Biological

❖ R = Radiological

❖ N = Nuclear

(Ministry of Defence Finland, 2024a; 2024b; Kegyes, Süle & Abonyi 2024; European Union 2022; Maavoimien Esikunta 2014; Baka & al. 2008)

“Intentional or accidental release of biological, chemical, nuclear or radiological hazards, resulting in loss of life, destruction and/or international crises. Includes accidents at or sabotage of biolaboratories, chemical plants and nuclear power plants, as well as the intentional or accidental release of biological, chemical and nuclear weapons”

(World Economic Forum 2024, p. 96)

“CBRN incidents include the detonation of CBRN weapons and the accidental or deliberate release of chemical and biological agents, toxic industrial chemicals (TICs) and toxic industrial materials (TIMs), biological pathogens and toxins, and radioactive material”

(NATO 2018, p. 1-1)



Few terms / definitions

- ❑ **Crisis:** “a low-probability, high-consequence event that develops very rapidly and involves ambiguous situations with unknown causes and effects” (Pearson, Roux-Dufort & Clair 2007, p. 109)
OR “when a group of people, an organization, a community, or a society perceives a threat to shared values or life-sustaining systems” (Pedak 2024, p. 2)

- 1) Operational & 2) Reputational (Coleman 2023, p. 36-39)
 - Phases of crises
 - Pre
 - Ongoing
 - Post (Coleman 2023; Jaques 2007)



- ❑ **Crisis Management:** “proper set of preparatory and response activities” (Pedak 2024, p. 2)

- ❑ **Crisis Communication** (CC): “strategic practice of effectively managing and disseminating information under conditions of deep uncertainty” (Pedak 2024, p. 2) -> **aims to inform and instruct** (Pedak 2024, p. 3)

- ❖ Several crisis communication theories exist – common trait is highlighting the meaning of doing things in advance

- ❑ **Crisis communication strategy & plan** (CCS & CCP): documents representing the aims and goals of CC (=CCS) and more specific ways (‘roadmap’) to reach them (=CCP) (Coleman 2023)

- ❑ **Crisis Communication Leader** (CCL): Experienced communication professional, who works closely to senior managers and steps up especially during adverse times. Plays big role in crisis preparedness, response, & recovery, and staff wellbeing (Coleman 2023)

Slide modified from a version originally made by undersigned as a part of a returnable pair work for the course “Crisis Leadership and Communication SY00BI90-3009”, presented in 9.11.2024 @Laurea UAS

Introduction 1/2

Own background and interests:

- Almost 19 years of experience related to the CBRN

Current events:

- War in Ukraine -> increases the risks of CBRN incidents
- Climate change & extreme weather conditions globally -> increases the risks of CBRN incidents
- Finland has recently joined to the NATO -> international cooperation between nations
- RescEU project -> international cooperation between nations

CBRNE-strategy 2024 (Ministry of Defence Finland 2024)



Introduction 2/2

- ❖ Global concentration on risk reduction and preparedness should take biological, chemical and nuclear hazards to special focus
- ❖ Most important drivers for the next 10y to reduce the impact of globally wide scale risks
 - ❑ CBRN hazard treaties & agreements
 - Links to local level strategies
 - ❑ Coordination of CBRN actions nationally and cross-border

(World Economic Forum 2024, p. 91-92)

- ❑ Multi-stakeholder involvement for CBRN  information + best practices exchange globally
 - Erosion of human rights
 - Technological power concentration
 - Adverse outcomes of AI technologies

(World Economic Forum 2024, p. 114)



Research questions + PICO-model



1. How to succeed in the Finnish CBRN culture as an authority?
2. How does CBRN compare as an area of expertise in relation to the wider field of authorities?
3. How Finland's national CBRN culture could be updated?

P _____ = People who work with the CBRN related issues in the Finnish Defence Forces, the Police of Finland, and the Finnish Rescue Services.

I _____ = CBRN topic in the Finnish Defence Forces, the Police of Finland, and the Finnish Rescue service.

C _____ = Comparison between organizations of the Finnish Defence Forces, the Police of Finland, and the Finnish Rescue service.

O _____ = Gain understanding of the similarities and differences in the CBRN cultures in the chosen Finnish authority organizations

→ Enhance the CBRN culture in and between the chosen Finnish authority organizations.

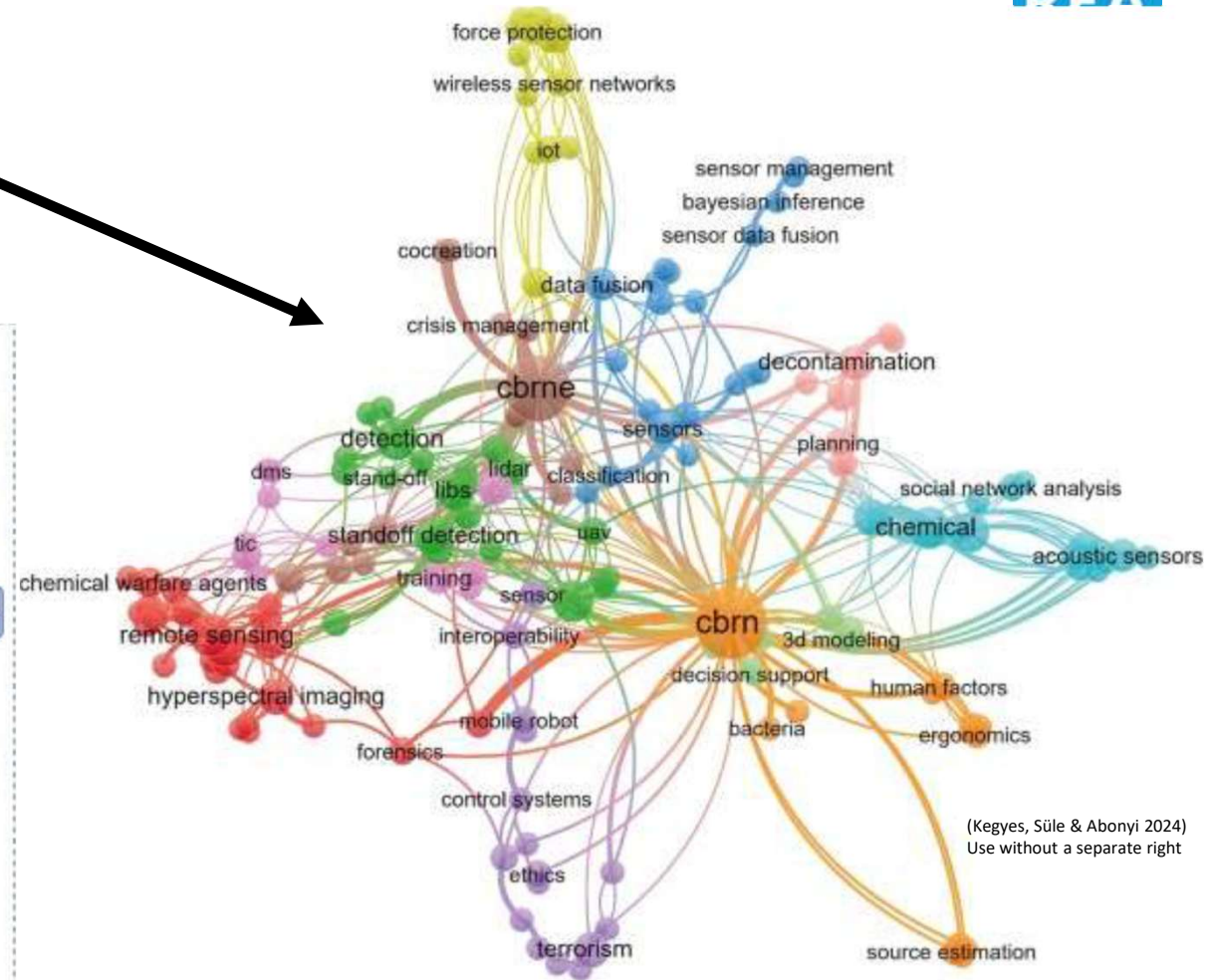
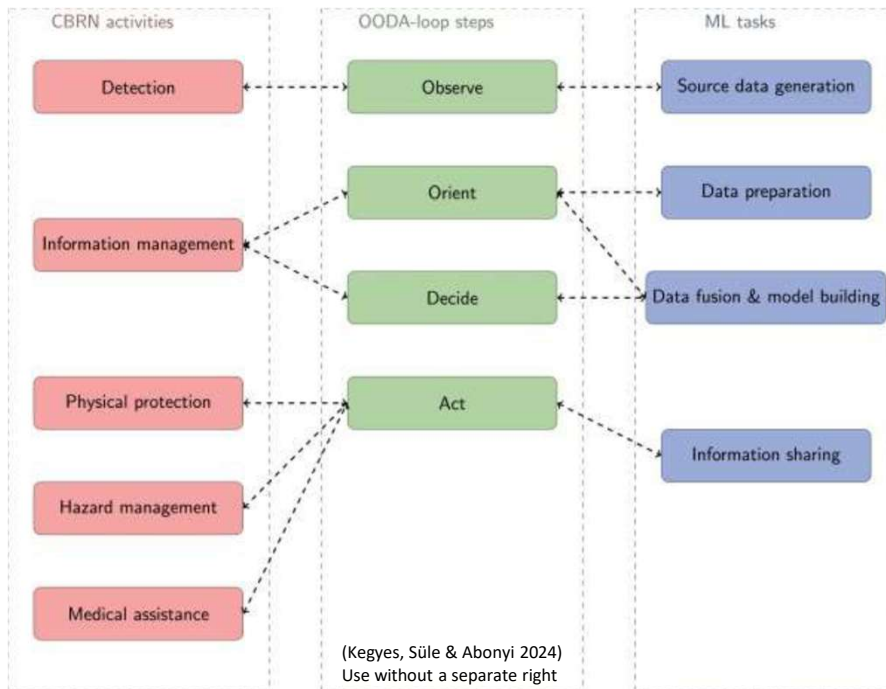
PICO-model v2.0 & data search inclusion and exclusion criteria (PCC –model)

PICO Elements	Keywords	Search Terms	Search Strategies
P (Population)	People who work with the CBRN communication related issues in the 1. Finnish Defence Forces (Army), the 2. Police, and the 3. Fire and Rescue Services	Defence Forces & Police & Fire and Rescue Services	Defence Forces OR Army OR Special Forces OR Police OR Fire and Rescue Services OR Firefighters OR Paramedics OR Rescue Services
I (Intervention)	CBRN communication (culture)	CBRN Communication & CBRN Communication Culture	Interpersonal Communication OR Inter-personal Communication OR CBRN Communication OR CBRN OR Communication Culture OR CBRN Communication Strategy OR Crisis Communication OR WOMD Communication
C (Comparison)	CBRN communication (cultures) 1. internally and 2. between the organizations	Organizational CBRN Communication (Culture) & Interagency CBRN Communication (Culture)	Organization Communication OR Organizational Communication OR Interagency Communication OR Organization Communication Strategy
O (Outcome)	Enhancement of the 1. internal and 2. interagency CBRN communication	(CBRN) Communication Enhancement	Communication Enhancement OR Communication Improvement OR Better Communication OR Improve Communication OR Enhancement of Communication

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Inclusion criteria															
2	Age = Under 5y old (Except CBRN related)															
3	Full Text															
4	Peer Reviewed															
5	Language = FIN and/or ENG															
6																
7	Exclusion criteria															
8	Age = Over 5y old (Except CBRN related)															
9	Duplicates															
10	Language ≠ FIN and/or ENG															
11																
12	PCC-model															
13	Population = Geographical = High educational level among the majority of population = 1. Scandinavia ; 2. Europe ; 3. USA & Australia															
14	Population = People who work with the CBRN related issues in the Finnish Defence Forces, the Police, or the Fire and Rescue Services															
15	Population = People who work with the CBRN related issues in the Defence Forces, the Police, or the Fire and Rescue Services															
16																
17	Concept = Interpersonal Communication, general theories															
18	Concept = Inter-authority Communication															
19	Concept = Communication inside and between the target population or suitable similar populations															
20	Concept = Communication methods, -standard operating procedures, -styles, -channels, -common practices, -challenges, -experiences, -expectations															
21	Concept = CBRN Communication (for example communication methods, -standard operating procedures, -styles, -channels, -common practices, -challenges, etc.)															
22	Concept = Communication inside and between authority organizations (best if related to CBRN)															
23																
24	Context = Communication inside and between the target organizations															
25	Context = Communication inside and between the target organizations, relating to CBRN															
26	Context = Communication inside and between the target population, relating crisis situations, common training, common projects, and/or cooperative situations															
27	Context = Communication culture inside and between the target population, relating to CBRN operative messaging, -crisis situations, -training, -common projects, etc.															

CBRN communication

- Ready models for interagency CBRN communication do not exist or could not be found



Research table example



Thesis Research Table / Esa IHALAINEN 2024

N:o of the source and its' type	Name of the publication	Source	Purpose	Method(s)	Findings	Theoretical and conceptual framework	Key terms concerning CBRN and/or communication	What it has to offer concerning the topic
		Accessed 12 September 2024. https://doi.org/10.1017/S1049023X21000790			such as regional differences, unclear definitions, and the need for ongoing training and integration into daily practices.	standard operational procedures.	Mass Casualty and Disaster Management Coordination of Emergency Services Two-tiered Triage System Emergency Preparedness Medical Rescue Coordinator Awareness Inter-regional Collaboration	
HOX 7 Academic article	Social Media and Crisis Communication (SMCC) Research in A Global Context: An Updated Review and Critique	Cheng, Y., Spruill, T. & Dalton, C. 2022. Social Media and Crisis Communication (SMCC) Research in A Global Context: An Updated Review and Critique. In: Jin, Y. & Austin, L. (ed.) Social Media and Crisis Communication . 2nd edition. New York: Routledge, 7-19.	Review the topical literature.	Quantitative content analysis.	More than half articles out of 157 applied theoretical frameworks and models. Situational Crisis Communication Theory (SCCT) were used more than others. Other important theoretical framework: Crisis and Emergency Risk	SMCC search: Social Media and Crisis Communication. SCCT: evidence-based framework that helps to understand best ways to understand the methods of reputational protection during post-crisis communication situations. Notifies also the ways how organizations	SCCT CERC SMCC Communication Tool Contextual Factors Theoretical Framework	Useful Theoretical Frameworks.



Background / CC theories

Can be found several and new ones keeps on emerging

Few examples:

- ❑ Situational Crisis Communication Theory (SCCT)
- ❑ Behavioral Crisis Communication Theory
- ❑ Contingency Theory of Strategic Conflict Management
- ❑ Social-Mediated Crisis Communication Model (SMCC)
- ❑ Image Repair Theory
- ❑ Attribution Theory
- ❑ Crisis and Emergency Risk Communication (CERC)
- ❑ Different theories concerning of crisis response narratives, like
 - Theory of Strategic Conflict Management



Page information from: Manias-Muñoz & Reber (2022) + Chen, Coombs & Holladay (2022) + Cheng, Spruill & Dalton (2022)

Background / iRo 1/2

- ❖ Study on professional communicators conducted in Finland 2023 (iRo)
 - ❑ 966 responders, 942 still working
 - ❑ 94% at least bachelor's degree with some communication studies
 - ❑ 15% works at the government in 2023 / 2021 = 17%
- Priority improvement (choose 5 out of 27 options)
 1. Strategy work and overall management (35%)
 2. Artificial Intelligent (34%)
 - ... 15. Emergency and crisis communication (14%)



Page information source: iRo (2023)

Background / iRo 1/2

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➤ Priority improvement (choose 5 out of 27 options)

1. Strategy work and overall management (35%)

2. Artificial Intelligent (34%)

... 15. Emergency and crisis communication (14%)

➤ Most important issues for communication management during the next two years

- ❑ Strengthening the role of the communication function as a strategic activity (40%, 1st out of 12 options)
- ❑ Building and maintaining trust (38%, 2nd out of 12 options)
- ❑ Addressing audiences better in different channels with limited resources (35%, 4th out of 12 options)
- ❑ Utilization of information and data in communication (32%, 5th out of 12 options)
- ❑ Linking business strategy and communications (25%, 6th out of 12 options)



Page information source: iRo (2023)

Background / iRo 2/2

❖ Study on professional communicators conducted in Finland 2023 (iRo)

➤ The most stressful part of communication work was told to be

1. Amount of work/too few resources (61%)
2. Difficulty planning one's own work and working days due to constant surprises and acute situations (60%)
3. Excessive haste and pressure of work (48%)
4. Shreddedness of work (46%)
5. Poor management, unclear decision-making (33%)

Page information source: iRo (2023, p. 71)

= Elements that could be found from CBRN incidents



Aim & Objective

- **Aim:**
 - Increase Finland's general safety by to improving the quality of the Finnish CBRN related culture and communication between the Finnish Defence Forces, the Police of Finland, and the Finnish Rescue services, by updating their cooperating methods, and by finding practical solutions through a better and more appropriate overall understanding of the scene.
- **Objective:**
 - Understand what it takes to become a CBRN expert in these organizations, as well as to understand the national CBRN communication culture prevailing in the Finnish Defence Forces, the Police of Finland and the Finnish Rescue services, and its effects on reality.



Research methodology



- **Qualitative study: COREQ –checklist domain 2 used in design** (Tong, Sainsbury & Craig 2007, p. 352)
 - Phenomenological study
 - Individual key-informant interviews
- **Participants were recruited mainly with purposeful sampling and secondary with snowball sampling**
 - Informants are known to have relevant experience by virtue of their professional role and work experience (inclusion criteria +5 years)
 1. Finnish Military CBRN professionals
 2. Finnish Police CBRN professionals
 3. Finnish Rescue services CBRN professionals
- **Number of participants = 5 with information power** (Malterud, Dirk Siersma & Guassora 2015)
 - Distribution aim: minimum of two (2) per each organization = 1 short
- **Data Management Plan (ARENE)** (The Rector's Conference of Finnish Universities of Applied Sciences Arene (2019; 2023))
- **Research permits and participation consent**
 - Research permits were applied from each organization / total number = 4
 - x 2 from one organization / one per operational unit
 - Information sheets / consent form / interview structure
 - Participants' consent were audio-recorded



**LAU
REA**

Aia herro tutkijoihin alaista tietoa missä vaiheissa tutkimusmenetelmät. Jos jotain tämän tiedon jälkeen vahingossa lipsahtaa haastattelun yhteydessä tai julkaisi myöhemmin, ettei joku ole olisikaan pitänyt sanoa/kertoa → anna tämä allekirjoittaneelle tiedoksi missä vaiheissa tahansa niin tämä tieto tullaan tuomaan esille tässä käytetä osaa tutkimusta. Yksilökohtaisesta puhtaasta tekstistä ja saat lukea omia sanojasi senään vielä ennen sille tehtävää sisällön analyysiä - tässä vaiheissa voidaan tehdä vielä korjauksia tai poistoja. Tutkimuksen toteuttajia siivousta toimimaan eettisesti sekä kunnioittamaan ja noudattamaan tutkijaluokan luvattuja asioita.

1

© 2011 Blackwell Publishing Ltd *Journal of Internal Medicine* 270: 105–114

Interview structure

Data collection and Management



■ Individual interviews

- One time session per participant, +1h~2h
- Face-to-face meetings in the location of their choice was given as option -> zero
- Interview meeting remotely in Microsoft Teams = all
- Similar to all open-end query body guiding the process without limiting the informants
 - Ensure that the main purposes and key interests are thoroughly covered with every participant + increases the probability that similar topics are risen from the data
- Data was collected during December 2024 – February 2025

■ Voice recordings are taken during the interviews

- Sony IC recorder ICD-PX470 -> Cannot be hacked wirelessly + records sounds in high quality
- Files were pseudonymised and named as "(AUDIO or TEXT)#participant number + dd.mm.yyyy" (no names) -> stored at a computer available only to me, equipped with multilayered passwords and encrypted individual files
- All files are destroyed and overwritten at the end of the study, after the academic appeal period is over
- All paper materials will be burnt in the end of the process, after the academic appeal period is over



Photo source:
Microsoft PowerPoint stock photo

Data analysis

- **Content analysis**
 - Inductive approach
 - Atlas.ti analysis tool was used
- **Data tells/orders what/where to concentrate to**



Screenshot source:
Haverinen-Mottaghi. 2023. Qualitative research methods workshop 17.4.2024. [online lecture notes]. From the Canvas workspace Research Methods in Health Care. Accessed 17 April 2024. <https://can-vas.laurea.fi>

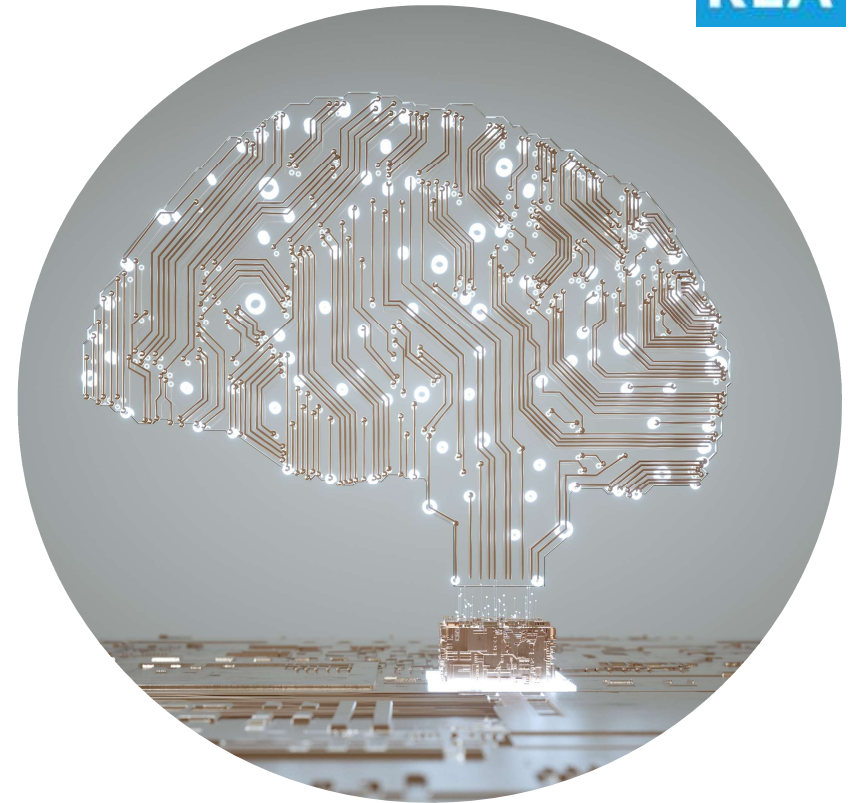


Photo source: Microsoft PowerPoint stock photo

Data analysis

➤ Lengths of the recordings

- #1. 1h 19min 59s
- #2. 1h 53min 17s
- #3. 1h 25min 41s
- #4. 1h 02min 53s
- #5. 1h 51min 29s
- Total length of all interview-data is 7h 33min 19s

➤ Word counts of the open-text documents

- #1. 7084
- #2. 12,547
- #3. 9385
- #4. 7316
- #5. 11,804
- Total of 48,136



Data analysis

➤ Coding in Atlas.ti

- RQ1 / RQ2 / RQ3 / Other observations
- 154 codes
 - 680 different places in text
 - Total hits 2716



An edited example screenshot from the Atlas.ti program



Data analysis

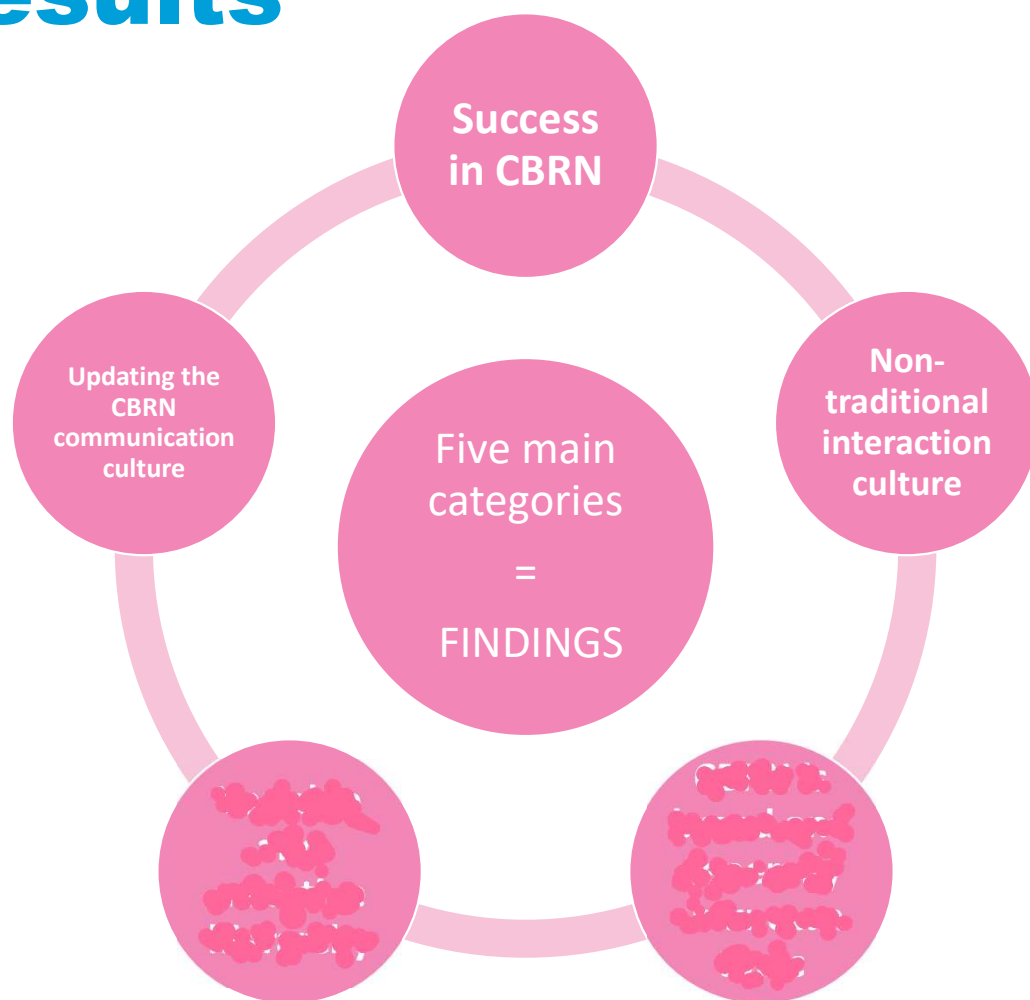


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Main category	1. Success in CBRN				
Subcategory	1.1 Competence and experience are mandatory for CBRN professionals	1.2 Skills are acquired in real life collaborative situations	1.3 Dedication to the topic of CBRN	1.4 Continuous development	1.5 Networking and trust building skills
Coding	Specialists, professionals, extensive skills, complex, knowledge, skills, expertise, equipment, infrastructure, dedication, development, personal traits, enthusiasm, high quality cooperation, networking				
1.1 "Täällä on paljon sellaista, josta on kiva oppia, ja se on myös hyödyllistä." (Ind. Interview 4)					
1.1 "Olen ollut mukana monissa koulutuksissa, ja olen oppinut paljon uutta. Olen myös voinut käyttää omaa kokemustani auttaessani muita." (Ind. Interview 3)					
1.2 "Lukeminen on tärkeä osa työtä, ja se auttaa ymmärtämään tilannetta." (Ind. Interview 5)					
1.3 "Olen ollut mukana monissa koulutuksissa, ja olen oppinut paljon uutta. Olen myös voinut käyttää omaa kokemustani auttaessani muita." (Ind. Interview 3)					
1.4 "Olen ollut mukana monissa koulutuksissa, ja olen oppinut paljon uutta. Olen myös voinut käyttää omaa kokemustani auttaessani muita." (Ind. Interview 3)					
1.5 "Olen ollut mukana monissa koulutuksissa, ja olen oppinut paljon uutta. Olen myös voinut käyttää omaa kokemustani auttaessani muita." (Ind. Interview 1)					



Results



Results



Main category	1. Success in CBRN				
Subcategory	1.1 Competence and experience are mandatory for CBRN professionals	1.2 Skills are acquired in real life collaborative situations	1.3 Dedication to the topic of CBRN	1.4 Continuous development	1.5 Networking and trust building skills

Main category	2. Non-traditional interaction culture			
Subcategory	2.1 CBRN has its own language with special terminology and vocabulary	2.2 Strong contact networks across organisational boundaries	2.3 Different approach depending on the organization	2.4 Attracts and engages a wide range of sectors of society

Main category	3.		
Subcategory	3.1	3.2	3.3

Main category	4.			
Subcategory	4.1	4.2	4.3	4.4 Limited information sharing

Main category	5. Updating the CBRN communication culture				
Subcategory	5.1	5.2	5.3	5.4	5.5

Strengths & Limitations

- + New topic -> the use of academically accepted structured methods
- + Researchers' own background = made this study possible
- + Cheap to execute
- ✓ Trustworthiness criteria by Lincoln and Guba (1985)
 - Credibility
 - Transferability
 - Dependability
 - Confirmability
- ✓ Ethical considerations are done also
- Limitations related to theoretical background / literacy
- Not easy – if even impossible to carry out by someone else in similar way
- Small sample in any circumstances -> had to reform



Recommendations + New terminology

- X
- Y
- Z

New terminology suggestion with descriptions:

- CBRN Messaging
- CBRN Communication
- CBRN Management Communication



Conclusion

1. How to succeed in the Finnish CBRN culture as an authority?

✓

2. How does CBRN compare as an area of expertise in relation to the wider field of authorities?

✓

3. How Finland's national CBRN culture could be updated?

✓



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**Thank you for your
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