Your Easy Start into Programming Projects

A workshop from past no-coders
for the innovative elite of tomorrow.

NIMS
NETWORK OF INNOVATION MANAGEMENT AND STRATEGY

Our mission for today is to give you a peak into how programing can help and how easy it is to build cool stuff.

1 Benefits & Specifics

- First Impression
- Our Way into Programming
- Case Discussion
- Benefits

2 Project Showcases

Google Trends

Easy and fast way to start with the basics

reddit

Crawler for free market research

Open for Innovation KNIME

For those topics where you don't want to write lines of code

3 Outlook & How to Start

- Some basics
- Why you should start with R
- How to start properly
- Survey

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Question Time:
Easing up with some questions

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Someone in between imposter, machine learning lover, and generalist

Aleksej Hoffärber

M.Sc Business Analytics @NHH

“People do not grow by making better what they did yesterday, but by anticipating tomorrow.”

ACADEMICS

- B.Sc Economics @Heidelberg University
- Certified Manager ORG/IT @zeb.bs
- M.Sc. Business Analytics @NHH
- M.Sc. Marketing Analytics @RSM

WORKING EXPERIENCE

- Research Analyst for Automotive & Digital
- 3 Internships in Mgmt. & IT-Consulting
- IT-Strategy Consultant (2y) @zeb
- Co-Founder @plus-minus-null

PROJECTS

- Revenue Optimization & Demand Forecasting
- Multimodal Supply Chain Simulation
- Prediction of Emerging Technologies (NLP)
- Medium-Term Stock Index Prediction

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Curious mind, busy translating between nerds & suits, corporates & start-ups

Janik Weigel

M.Sc Business Analytics &
CEMS MIM Double Degree
@NHH & NUS

Makers
Gonna'
Make

ACADEMICS

- B.A. Business Admin. (dual study program) @DHBW Mannheim
- Certified SixSigma Yellow Belt
- M.Sc. Business Analytics @NHH
- CEMS Master in International Management @NUS

WORKING EXPERIENCE

- Radio Towers Intern @Deutsche Telekom
- Corporate Student (5x placements globally) @Merck KGaA
- Hackathon Program Manager (2y) @Merck Innovation Center
- Analytics & Insights Summer IT Intern @P&G

PROJECTS

- Automated IP/ patent strength prediction (NLP)
- Building up LUFORTE, the "opportunity finding" agency for SMEs
- Ad solutions for the post-COVID travel recovery in APAC w/ Google Asia
- Mentoring for first-in-family university students

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Cases:
Be ready to learn and to use Google!

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An industry that still relies on Analysts and Juniors crunching numbers. How can you spend your time more wisely?

CASE I – STRATEGY CONSULTING FOR PRICING & MARKETING

1. You analyze customer preferences referring to the launch of a new sunglasses brand
2. You and your team have set-up the experiment and gather data
3. Data collection takes 4 weeks, clients wants updates every 2 days
4. You clean data every 2nd day in Excel, steps are mostly the same
5. Sometimes delays because of other tasks or new answers

What's the benefit of a script compared to Excel operations? **A**

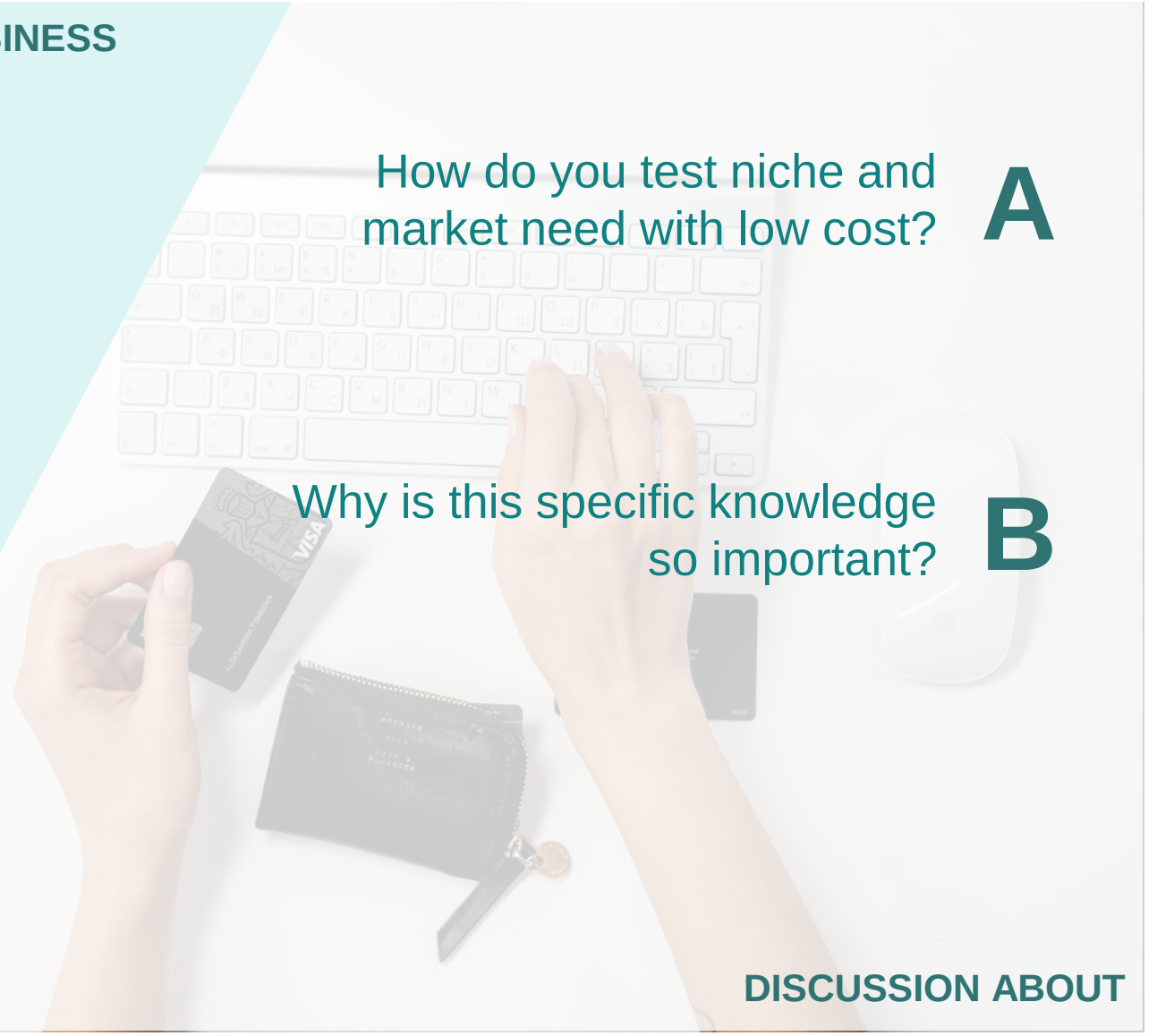
How can you circumvent such problems in the future? **B**

DISCUSSION ABOUT

Founding is cool. But are you ready to learn everything and mostly stuff you cannot understand, yet?

CASE II – SELLING PLANTS, FOUNDING YOUR ONLINE BUSINESS

1. Your passion for plants and related accessories gives you no break
2. High demand, but also strong market presence of local & online shops
3. You must find your niche and test the case with few resources (~300 EUR)
4. Advisor: “You need to fully connect **FB-Pixel & Google Analytics**!”



A How do you test niche and market need with low cost?

B Why is this specific knowledge so important?

DISCUSSION ABOUT

Discussion:
Should everybody learn to code?

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Benefits:
Why should you even consider coding?

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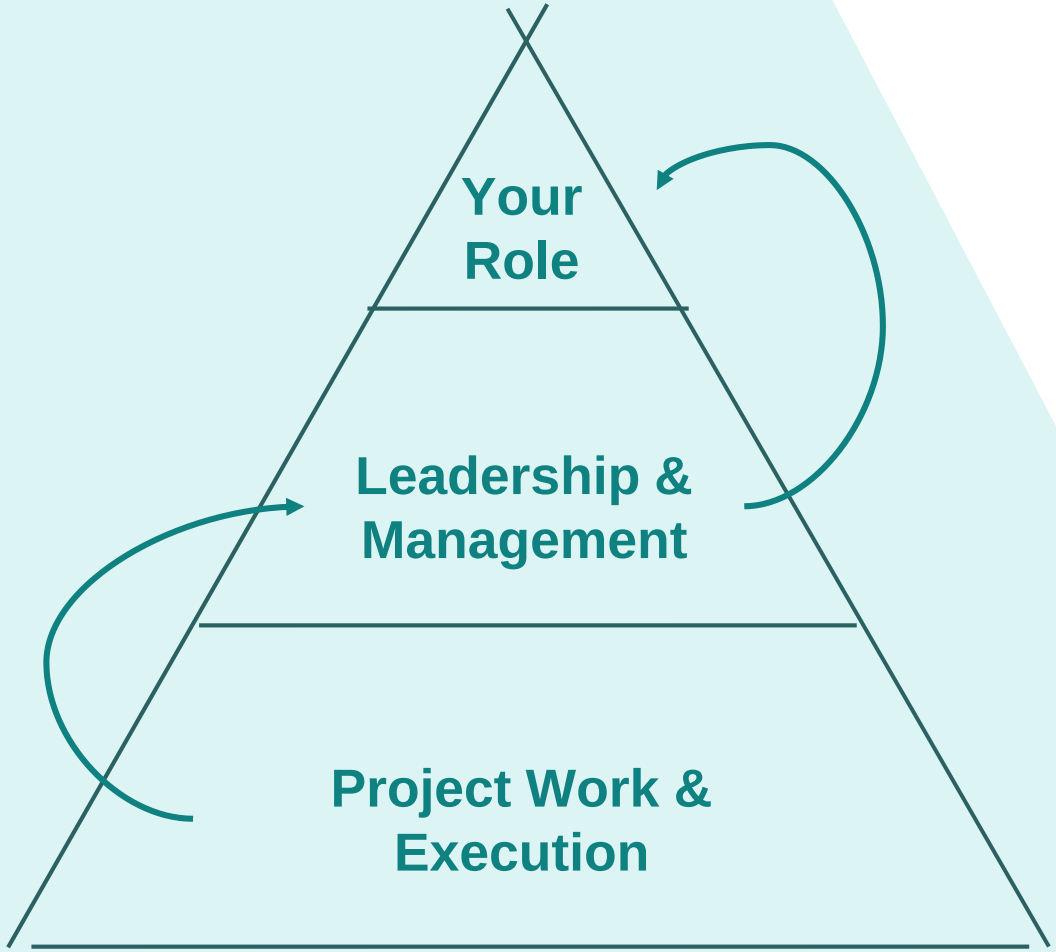
Programming is not about the craft. It's more about the associated soft-skills needed to lead and work in the complex and innovative world of tomorrow.



How the **expectations** of technical expertise **change our positions**.

How programming can help us become **better leader and managers.**

From problem-solving to more hands-on **technical experience**.

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Not just industries are changing, but also our future roles and responsibilities

A Future role of NIMS students

Our mission: As innovation and management experts of tomorrow it is our task to lead by example

Everything is tech: Most of us will most likely end up in positions that will require of technical expertise

No interdisciplinarity: We mostly conduct projects and work with people who think alike

B What circumstances are changing

Change in organizational structures: Increased amount of automation leads to a reduction in control and management tasks.

Change in beginner and senior positions: Technical expertise is already a basic requirements but often students are not prepared for it.

No-Code: A lot of change going on that makes it more important to understand basic concepts than coding

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Learning the basic concepts is not about building the best tech: **You also learn a lot about how to lead and manage people**

C Leader Style

Understand how programmers think, act, relax, and approach their work

Have their back, do not invite them to unnecessary meetings or if they are stressed (bug fixing)

Learn how to **motivate and incentivize** them in their terms (they are different, do not cope with people)

Reward them for **out-of-the box thinking**: this is what keeps them awesome

Programmers, designers, architects, and engineers do not like micromanagement and **need freedom**

D Management Effectiveness

Support in decision-making (ask for challenges, alternatives, trade-offs, progress)

Understand general concepts (data structure, migration, APIs, testing, UI, UX, security)

Having a background in the concept helps you both to select the **best decision to take** (challenge)

It's not a one-way road: Also ask for their opinions, suggestions etc.

Do not get too deep (not code level), more on a conceptual level (tasks, chunks, interfaces, logic)

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NIMS

Coding can help you to become a generally better problem-solver, analyst, decision-maker, and project contributor

E Problem-Solving

Breaking tasks down to small, plannable and executable chunks

Being agile automatically: Understand, plan, divide, design, test, implement, (production)

Helps to stay fit and structured: Continuous problem-solving using mostly online resources

Understanding **interdependencies** (projects, data, data structures, methods)

F Tech Expertise

Normal analyst positions are also undergoing a change and leaders and managers start to expect more:

Example: Marketing professionals are not just creating ad campaigns, press releases, blogs and maintain a bit of social media

They must do A/B **tests**, track multi-channel **performance**, **synchronize** customer journeys, **get data via SQL** etc.

G Efficient RM[1)]

Ineffective RM one of the **leading causes of project fails**[2)]

Scope creep, quality of requirements, and lack in communication as indicators

Art of combining vision with actual streams, and features

Difficult because of vision vs. expectations vs. reality

Communicational effort: Combine customer, product, technical, and architectural view

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1) Requirements Management
2) Source: IBM Rational Project Manager Survey

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Some Basics:
Key Concepts for Projects

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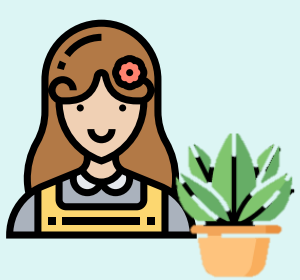
Project Showcases 1/3 – Getting started with Google Trends

THE SITUATION: APRIL 2020



THE SOLUTION

Google Trends

LEARNING INSIGHTS

- Sneak peak into a R script
- Basic data structures → dataframes
- Data entry (import manually vs. API), R core vs. packages
- Data visualization

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Initially, I just wanted to do some market research. Then, hedge funds started some reddit mining. And well, since GameStop everybody knows the secret.

PROJECT II – BUILDING YOUR FIRST WEBSCRAPER

SITUATION

1. Your self-help start-up launched successfully, first customers are buying
2. Now you want to expand and need to enhance your product and marketing
3. “Let’s just observe, what normal people care the most about!”

SOLUTION

! Reddit and its specific subreddits may be a solid solution

! You can categorize topics and analyze preferences

WHAT YOU’LL LEARN

A How to use Python to access a reddit database

B How to handle textual data

C How to train a machine learning model that classifies topics on its own (…and how it works)

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What's your take?
For what would you use textual data?

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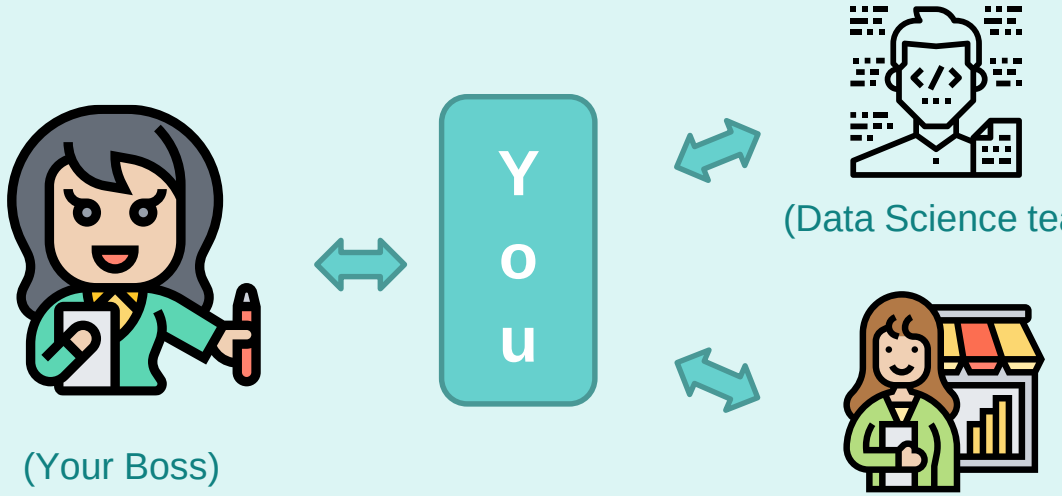
Project Showcases 3/3 – Predicting in the KNIME Analytical Platform

THE SITUATION: INTERFACE / “TRANSLATOR”



(Your Boss)

(Data Science team)

(Sales team)

THE SOLUTION: NO-CODE

Open for Innovation
KNIME

LEARNING INSIGHTS

- Sneak peak into KNIME
- Background: no-code solutions
- Background: predictive analytics and scoring of models
- Fantastic “nodes” and where to find them

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Programming is not programming. Different areas focus on different objectives and defines what languages you should learn.

	Front-End	Back-End
Goals	1. Projects that can be **seen by the user** 2. All user interface and user experience topics 3. Main concerns are regarding **responsiveness**, **appeal** and **client-side loading times**	1. The **infrastructure** that makes the project work 2. Everything with which a user **cannot interact** 3. Main concerns are server-side **loading times**, **logic, integration** with hardware, security…
Tasks	• **Data Visualization** • Dashboard Set-Up • App Design • UI & UX Design • SEO	• **Database** • **Machine Learning** • Optimization • Simulation
API		

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APIs help not only Front- and Back-Enders to quickly access new technology and data but is also your chance to connect to powerful sources

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Tasks	• **Data Visualization** • Dashboard Set-Up • App Design • UI & UX Design • SEO	• **Database** • **Machine Learning** • Optimization • Simulation
API	Similar role to a **waiter in a restaurant**	You **do not need to understand** the restaurant **operations** **Easy to access data** from third-party apps if they are public Google Trends reddit The Weather Channel aws

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3 keystones of your easy programming journey: packages that are publicly available make it easier to pursue the projects of your dreams

IDE

Integrated Development Environment is what MS PowerPoint is to consultants: **The tool you work with.**

Choice is essential for a smooth and hassle-free coding environment.

Forums & Open-Source

Forums and stackoverflow are the (!) sources to help you out if you encounter any problems.

Helps to **grow the community** by developing needed solutions and fixing problems fast.

Packages / Library

How you refer in a programming sense to those “solutions” made by third-parties.

In a practical sense: An **easy way to build webscrapers, visualizations, apps** etc.

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Open-source ecosystem, and R's versatility helps you to start quick and apply your knowledge to other important languages and software

WHY YOU SHOULD START WITH R

1. Taught the most in business school and economics, fast and intuitive to learn
2. Great packages help to build most optimization, and ML projects
3. Data manipulation is like handling SQL, helpful for analysts
4. Syntax can be easily adjusted to reflect your thinking process
5. Closest in match with our build skill-set (statistics, regression)
6. IDE helps to navigate you need (+ can run Python)

Summing up & looking ahead: How to start properly

Start now, start simple!
Don't be intimidated by this "strange" world of programming
→ it's fun and simple to get going

Consider taking more technical courses in your Masters
→ best pay-off: intro to databases & SQL

stackoverflow

Google is your best friend

But for what?
Pure adrenalin!

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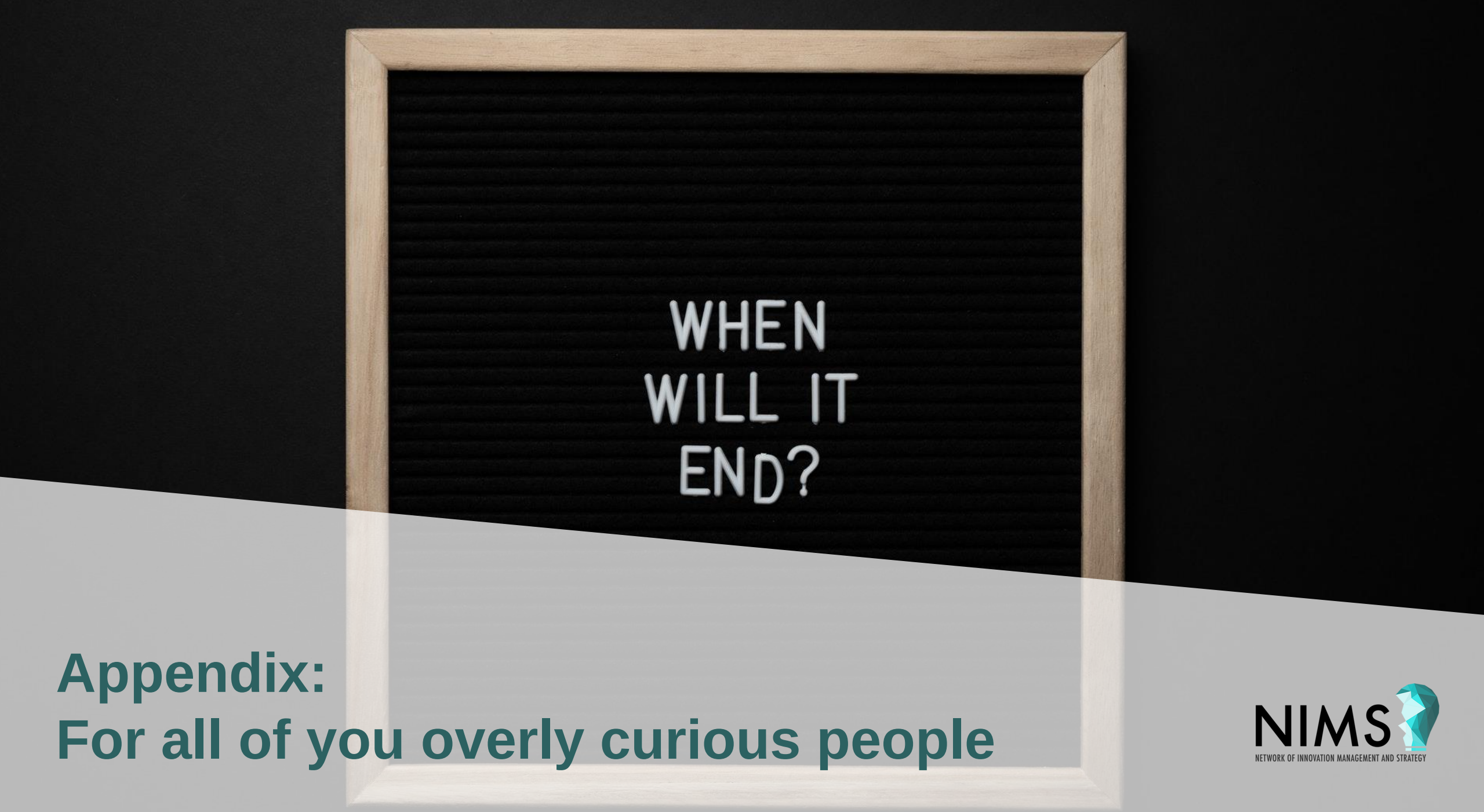

Appendix:
For all of you overly curious people

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In a more granular sense, coding can help you to become a generally better problem-solver, analysts, decision-maker, and project contributor

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Tapping into programming can help you become a better leader, manager, and problem solver

SUMMARY

Role

Our role

Without interdisciplinarity experience we will lead and manage different people – we need to be prepared

What is changing

Not just managerial positions are changing, but also analyst positions. We need to find our niche.

Manage

Leader Style

Understand them and use this insight to motivate them and have their back so you all achieve your results

Mgmt. Effectiveness

Comprehend general concepts so that you can take the best decisions, but do not get too technical

Execute

Problem-Solving

Being and thinking agile helps to solve hard and interdisciplinary problems continuously

Tech Expertise

Jobs change, but in one direction: You need to make data-driven decisions faster.

Efficient RM

Important for projects you'll be part of, no matter your eventual responsibility

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