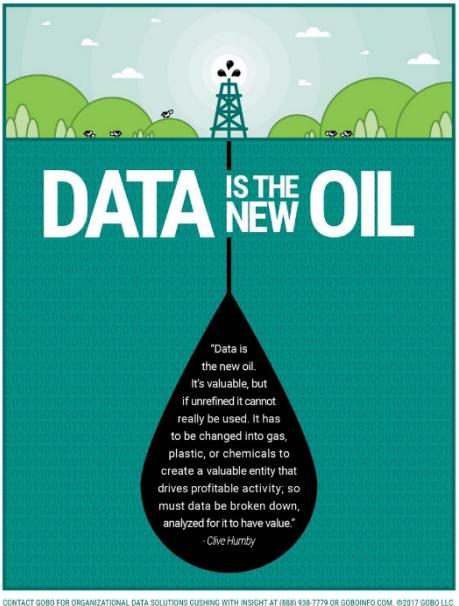


# MAKE SWITZERLAND FITTER

## Helsana

### *Case Deep Dive*

# #11 ENHANCE DIGITAL SERVICES WITH DATA



Future.Talk 1 / 2018

**Data: gold or kryptonite?**  
An insurer's guide to the resource of the future

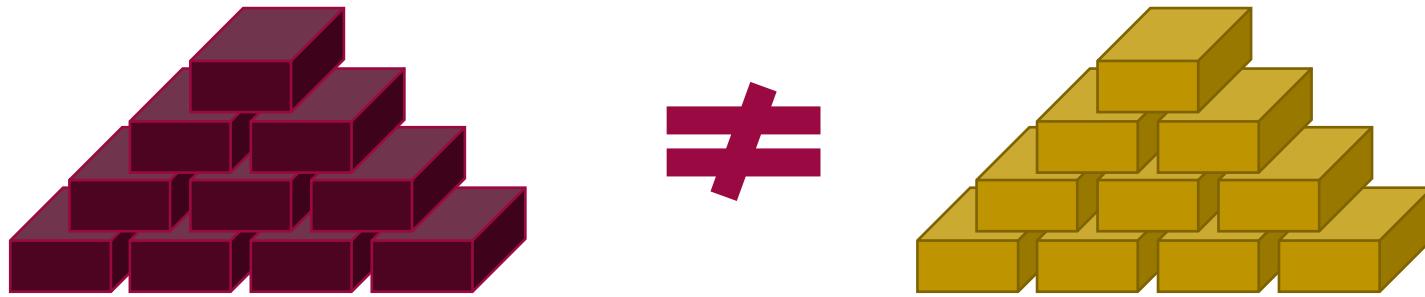
<https://twitter.com/srlm/status/977920324456116224?lang=hu>

<https://itchronicles.com/technology/data-the-new-gold-rush-for-businesses/>

<https://www.ivw.unisg.ch/wp-content/uploads/2018/02/FT1-2018.pdf>

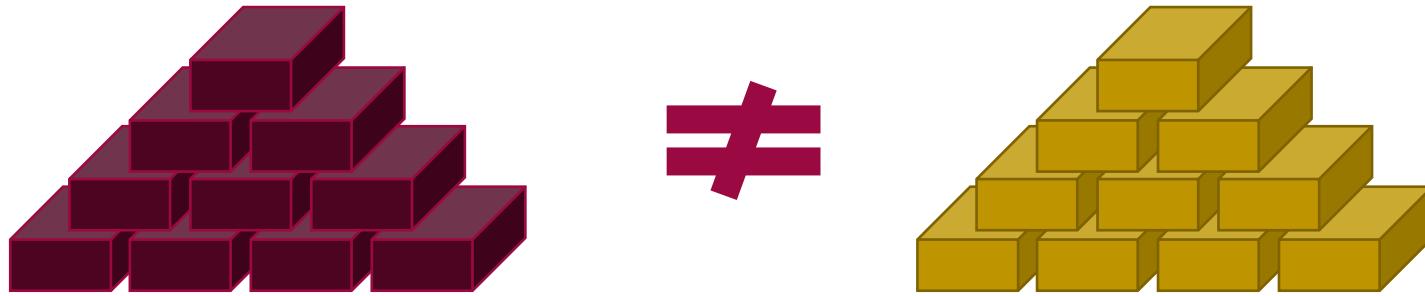
Helsana

## #11 ENHANCE DIGITAL SERVICES WITH DATA



Raw data is not gold

## #11 ENHANCE DIGITAL SERVICES WITH DATA



Raw data is not gold, yet

# MAKE SWITZERLAND FITTER



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Attila Ujhazi  
*Product Architect*

[HELSANA\\_Atti](#)



Paulina Näf  
*MSc Life Sciences  
Android/ML*

[HELSANA\\_Paulina](#)

# MAKE SWITZERLAND FITTER

## Health Apps



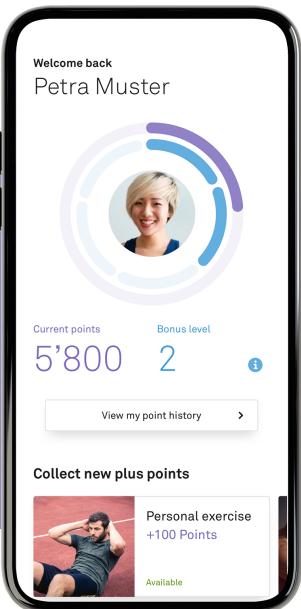
### Being active

Whether you swim, run, hike or bike – transform your exercise into valuable Plus points with the Helsana+ app. That way, you can keep adding to your account balance.



### Preventive health

Prevention is better than cure, and by taking preventive health measures you are rewarded with both health benefits and Plus points. This applies to relaxation and prevention classes, nutrition courses, health check-ups and much more.



### Memberships

Are you a member of a gym or sports club? Then you will receive Plus points for that too. We also reward you for activities in other areas, such as education, children and youth, or music.

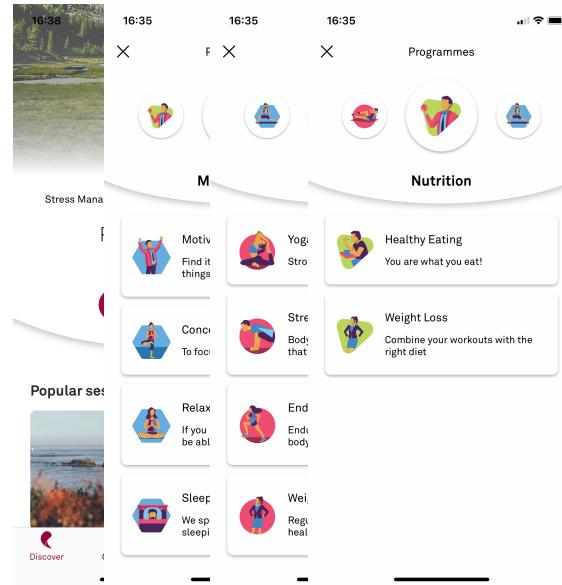
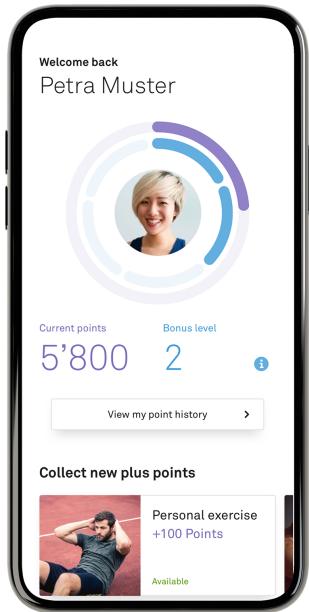
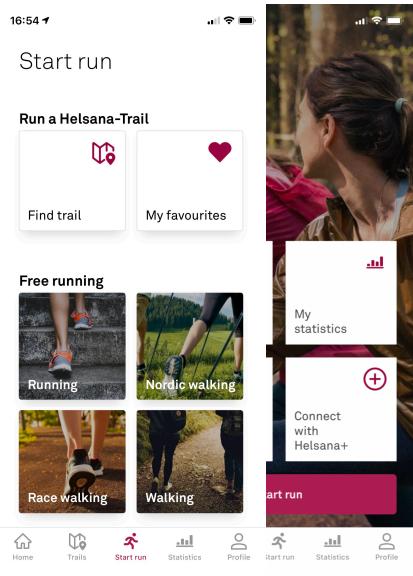


### Being connected

We reward you for demonstrating longstanding loyalty, successfully recommending us to others or taking out a long-term policy. You also collect Plus points when using the myHelsana customer portal.

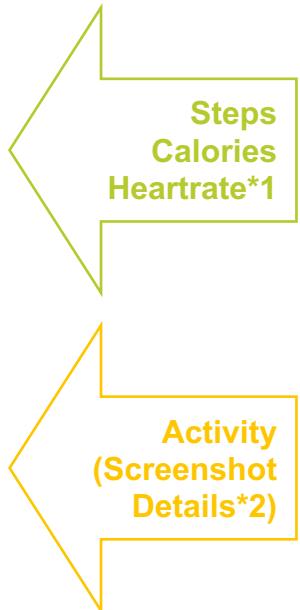
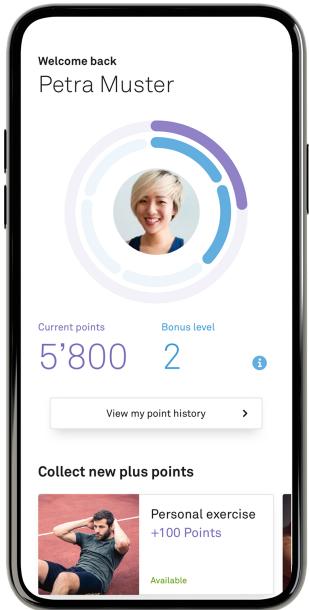
# MAKE SWITZERLAND FITTER

## Health Apps

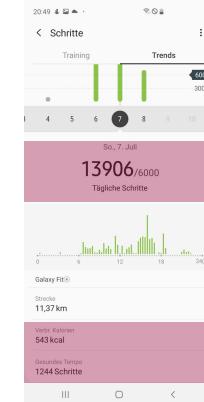


# MAKE SWITZERLAND FITTER

## Health Apps



POLAR® GARMIN®



\*1 no details, only what gave points

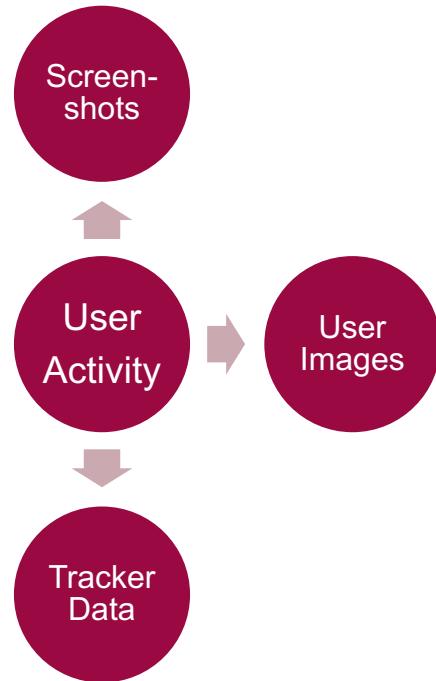
\*2 based on anonymous Screenshots not from H+ data

# MAKE SWITZERLAND FITTER

## *Activity Data*



Microsoft  
Cognitive Services



Helsana

# MAKE SWITZERLAND FITTER

## *Data Structure*

- Image data
  - classified
  - Google vision content/labels
- Screenshot
  - classified
  - Azure cognitive service OCR extract
- Tracker
  - No vital data
- App data
  - Activities
  - Loyalty
  - Prevention
- Activity details coach
  - Type, Category, Subcategory
- Activity details trails

# MAKE SWITZERLAND FITTER

## Data Set

<b>Id</b>	<b>UserId</b>	<b>Gender</b>	<b>Age</b>	<b>ActivityTime</b>	<b>BasicActivity</b>	<b>ImageClass</b>	<b>RecognizedActivity</b>	<b>LabelsJson</b>	<b>ScreenshotFindingsJson</b>	<b>ScreenshotFindingsDetailsJson</b>	<b>ActivityDetails</b>
c7745641-9f40-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-01-08 18:30:12	Trails App Run							Free run completed
9f636a59-6110-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-03-10 06:22:49	Session nutrition Coach							{"ActivityType": "Session complet"}
967870fb-a720-066856a0b120bf56e01f3647a2eb84fd	female	51	2020-10-04 06:46:54	Daily session							{"ActivityType": "Session complet"}
1cf09fc0-a977-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-02-04 06:25:44	Trails App Run							Free run completed
8aa16dd6-5310-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-02-14 07:34:16	Session nutrition Coach							{"ActivityType": "Session complet"}
a6ccca51-e006-066856a0b120bf56e01f3647a2eb84fd	female	51	2020-12-26 11:59:21	Trails App Run							Free run completed
41b3f34b-2650-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-01-05 19:09:58	Helsana+ survey first half year 2021		Unknown					{"Language": "it", "TextAngle": 0, "Orientation": "NotDetected", "Reg": "Stepsthreshold matched"}
fea2a84b-8d10-066856a0b120bf56e01f3647a2eb84fd	female	51	2020-07-07 23:59:59	Personal exercise							
4e05a43f-79c0-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-03-05 06:33:44	Session nutrition Coach							{"ActivityType": "Program comple"}
4997ff99-9170-066856a0b120bf56e01f3647a2eb84fd	female	51	2020-03-01 20:11:31	Personal exercise	Bikelmages	Unknown		[{"Label": "Eyewear", "Score": 0.994274497032165}, {"Label": "Sun", "Language": "unk", "TextAngle": 0, "Orientation": "NotDetected"}, {"Label": "Sky", "Score": 0.966245710849762}, {"Label": "Snow", "Language": "it", "TextAngle": 0.12217304763960102, "Orientation": "NotDetected"}]			
e398c76f-b510-066856a0b120bf56e01f3647a2eb84fd	female	51	2021-02-15 13:53:16	Personal exercise		Unknown					

Count Users: 1'125

Count Activities: 190'502

# MAKE SWITZERLAND FITTER

*Data Set: LabelJSON*

## 2. Setting up API



Google Cloud Platform

```
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54
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56
57
58
59
60
61
62
63
}
],
{
  "BoundingBox": "69,151,76,28",
  "Text": "Il'108"
},
],
{
  "BoundingBox": "86,187,41,9",
  "Words": [
    {
      "BoundingBox": "86,187,41,9",
      "Text": "Schritte"
    }
  ],
  "Words": [
    {
      "BoundingBox": "122,240,129,16",
      "Text": "7,93"
    },
    {
      "BoundingBox": "154,244,13,8",
      "Text": "km"
    },
    {
      "BoundingBox": "185,240,45,16",
      "Text": "0242"
    },
    {
      "BoundingBox": "235,244,16,8",
      "Text": "kcal"
    }
  ]
}
```

# MAKE SWITZERLAND FITTER

## *Data Set: LabelJSON*

```
[ {"Label": "Running", "Score": 0.9382660984992981},  
 {"Label": "Jogging", "Score": 0.8981889486312866},  
 {"Label": "Recreation", "Score": 0.8563333749771118},  
 {"Label": "Exercise", "Score": 0.7882281541824341},  
 {"Label": "Joint", "Score": 0.739563524723053}, {"Label": "Physical fitness", "Score": 0.7344343066215515}, {"Label": "Fun", "Score": 0.7039424180984497},  
 {"Label": "Tree", "Score": 0.6869218349456787},  
 {"Label": "Leisure", "Score": 0.6809553503990173},  
 {"Label": "Knee", "Score": 0.6403753757476807}]
```

# MAKE SWITZERLAND FITTER

## *Data Set: ActivityDetails*

```
{"ActivityType": "Program completed", "CategoryType": "Nutrition activity completed", "SubcategoryType": "HealthyEating completed"}
```

# MAKE SWITZERLAND FITTER

## *Data Set: Access*

Direct SQL read-only access **OR** REST API access

<https://github.com/START-Global/Helsana-STARTHACK21/>

# Food Recognition API

ETH Zurich & University of St. Gallen

Team of software engineers and PhD students.



University  
of St.Gallen

**ETH** zürich



Jam

Strawberries

Pancakes

Sauce

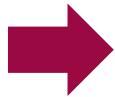
Cream

Plum

# API Analyse Food – Label Ingrediens and nutrition facts

- API To get labels to images of meals / food.
- Send an Image (/vision/ **POST** )
- Response will be a JSON with weighted Labels for the recognized ingredients

Example:



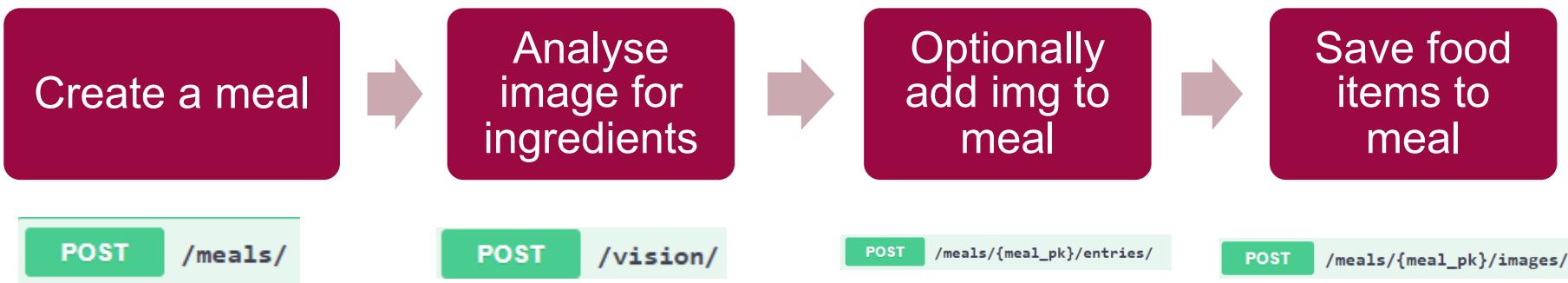
```
{  
  "id": "0299622f-b708-4ccd-91ed-3272c42bb34c",  
  "image": "6e17eb33-1e50-456c-8184-111e89c4e19d",  
  "model": "698ce742-7a49-472c-b00d-eb9b54c9a8fb",  
  "items": [  
    {  
      "score": 0.16814,  
      "item": {  
        "id": "9ab62c33-9b8c-4e02-83d2-ecbb16fa115e",  
        "name": "Sandwich",  
        "details": null,  
        "description": null,  
        "brand": null,  
        "type": null,  
        "text_ingredients": null,  
        "ingredients": [],  
        "parents": [],  
        "children": [  
          {  
            "id": "3a17acf-c-d346-4d31-8ae-da4b9500f4e6",  
            "name": "Bacon Egg And Cheese Sandwich",  
            "brand": null,  
            "details": null,  
            "categorizations": {},  
            "is_generic": true  
          },  
          {  
            "id": "505e8a36-b2d2-430f-a47a-3a47b2b34cef",  
            "name": "Club Sandwich",  
            "brand": null,  
            "details": null,  
            "categorizations": {},  
            "is_generic": true  
          }  
        ],  
        "nutrition_facts": [],  
        "is_generic": true,  
        "categorizations": {}  
      }  
    ]  
  ]  
}
```

```
{  
  "id": "23c66800-5b53-443c-a464-2509d3bee81",  
  "ingredients": [],  
  "is_generic": true,  
  "name": "Cheese",  
  - "nutrition_facts": [  
    - {  
      "id": "77fdb4e2-6085-4b6b-813a-d8bd",  
      "is_default": false,  
      "item": "23c66800-5b53-443c-a464-2509d3bee81",  
      - "nutrition": {  
        "beta_carotene": 16.781,  
        "beta_cryptoxanthin": 1.557,  
        "calcium": 164.35,  
        "cholesterol": 15.051,  
        "choline": 3.806,  
        "copper": 0.0055,  
        "folate": 2.768,  
        "iron": 0.1124,  
        "lutein_zeaxanthin": 4.671,  
        "magnesium": 5.017,  
        "monounsaturated_fat": 1.2454,  
        "niacin": 0.0195,  
        "omega_3": 0.0014,  
        "phosphorus": 104.319,  
        "polyunsaturated_fat": 0.1424,  
        "potassium": 25.431,  
        "protein": 3.9306,  
        "retinol": 37.887,  
        "riboflavin": 0.0649,  
        "saturated_fat": 2.7692,  
        "selenium": 2.5604,  
        "sodium": 141.168,  
        "sugars": 0.4308,  
        "vitamin_a": 1.2454  
      }  
    }  
  ]  
}
```

Helsana

# API to create meals

- Analyse a meal
- How does it work?



# Details

- General overview: <https://docs.bite.ai/introduction>
- API Reference: <https://api-beta.bite.ai/y7vtjyn4f64c/docs/reference/>
- Swaggerfile: <https://api-beta.bite.ai/y7vtjyn4f64c/docs/swagger/>

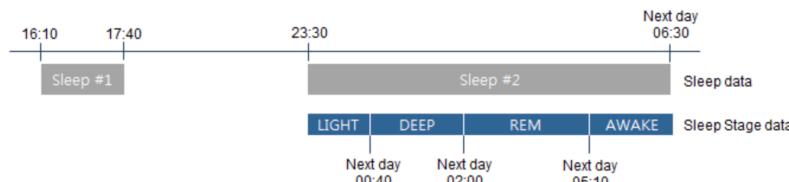
Authentication: Please request a set of keys and tokens if you would like to use the APIs

# Samsung Health

- Export of a Samsung Health account. **Not a good sleeper.**

## Sleep and Sleep Stage

HealthConstants.Sleep includes only the start and end time of the user's sleep. SleepStage gives detailed sleep stage information with several sections for the specified Sleep data. The sleep stage can be presented as the following figure.



<https://img-developer.samsung.com/onlinedocs/health/android/data/com/samsung/android/sdk/healthdata/HealthConstants.SleepStage.html>



# MAKE SWITZERLAND FITTER

## *there is already so much data about us*



Smart Watch  
Medical Device  
Wearables



Medical Report  
Blood Tests  
Chronic Diseases



Journal  
Training Plan  
Other Apps



Drugs  
Vaccines  
Vitamins



Social Media  
Fitness Apps  
Other Apps

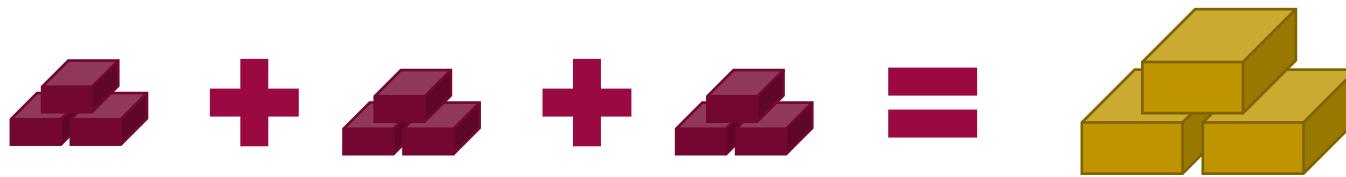
# MAKE SWITZERLAND FITTER

## *Other Sources*

- **Healthcare APIs**  
<https://www.programmableweb.com/category/healthcare/api>
- **HHS.gov U.S. Department of Health & Human Services**  
<https://www.hhs.gov/web/developer/index.html>
- **health.gov APIs for Developers**  
<https://health.gov/our-work/health-literacy/consumer-health-content/free-web-content/apis-developers>
- **Rapid API Top Healthcare APIs**  
<https://rapidapi.com/collection/healthcare>
- <https://getguidelines.com/> -> is having issues at this very moment

# MAKE SWITZERLAND FITTER

*Data Set*

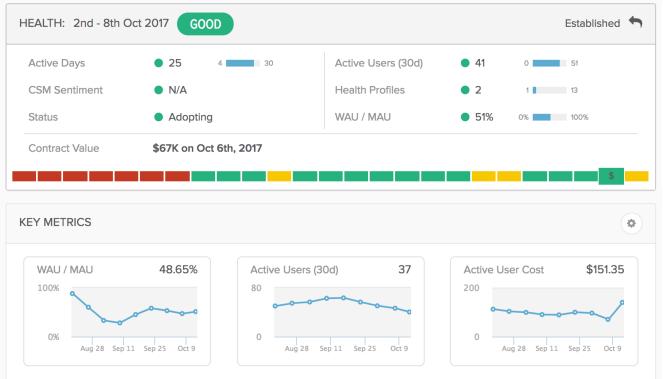
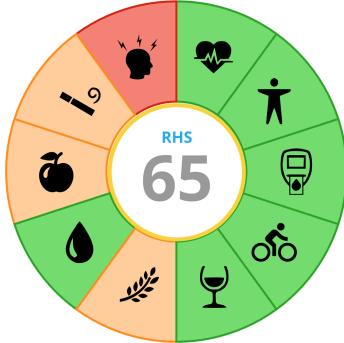


New digital  
services

# MAKE SWITZERLAND FITTER

## Challenge

- Dashboard of user health and achievements
- Create a virtual avatar
- Content suggestion



# Azure Cloud

Microsoft Pearson VUE Pearson VUE Home My Order Return to Microsoft Sign Out

Signed In as: [REDACTED]  
MS ID: MS [REDACTED]

## Checkout - Step 1 of 3: Enter Payment

Order Total

Subtotal: [REDACTED]

Estimated Tax: [REDACTED]

ESTIMATED TOTAL DUE: USD [REDACTED]

[▼ Add Voucher or Promo Code](#) [What is this?](#)

Required information is marked with an asterisk (\*).

Card Details

We accept the following cards:



# MAKE SWITZERLAND FITTER

## *Judging Criteria*

<b>Complexity &amp; Technical Sophistication</b>	How technically impressive is the solution? Were any nifty techniques, algorithms or combination of different components used? Are appropriate services, technologies and infrastructure applied (e.g. cloud computing, AI, databases)?	20%	1-10
<b>Design</b>	Did the team put thought into the user experience? How well designed is the interface? Is the user experience intuitive? Depending on the project, you might have to look at how beautiful the graphics are, how good the human-computer interaction is or how well the flow of the solution is designed.	10%	1-10
<b>Viability</b>	How significant and relevant is the prototype's use case to the tackled business problem? Is it something people would actually use? Does it fulfill a real need people have?	25%	1-10
<b>Feasibility</b>	Is the hack usable in its current state? Did the team achieve everything they wanted? Could the prototype scale as a real solution with multiple users?	15%	1-10
<b>Creativity &amp; Innovation</b>	How creative or innovative is the idea behind the prototype? How did the team deal with the awareness of other attempts that try to solve the same problem and how does the team position their hackathon entry? Does it pull something off that hasn't been pulled off before?	20%	1-10
<b>Presentation</b>	Is the team able to explain what the prototype actually does? Does the presentation and demo show how their hack has fulfilled the judging criteria? Does the team communicate the essence of why they did what they did and why it is important?	10%	1-10

# MAKE SWITZERLAND FITTER



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**Helsana**  
Engagiert für das Leben.