Extended Value Chain Analysis for Tête de Moine PDO value chain in Switzerland

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Version 2.0, 07/2022

This document forms the basis for the Extended Value Chain Analysis (EVCA) (Task 4.3) and will used in relation to, both, the Desktop Review (Stage 1) starting in November 2021 and Interviews (Stage 2) starting in January 2022. The template should be completed before starting workshops in April-May 2022.

Please refer back to 'Methodological Guidelines for WP4' document for further information on principles, dimensions, and steps involved in the EVCA.

Partners should complete a separate version of this document for each value chain (VC) identified in Deliverable 4.2.

BEFORE STARTING DATA COLLECTION all partners should produce a one-page summary and initial diagram representing the key features and significance of the focal VC in the context of the MRL. This will provide a starting point for data collection, in terms of identifying gaps, and supplementing and verifying what you already know (including information in other work pages and deliverables). The initial summary section has been shared as a separate document and the information should later be copied into Section 1.1 of this template.

Initial summaries should be completed by Monday 6th December for discussion at the WP4 Drop-in session on Thursday 9th December 2021. Please upload initial diagrams and one-page summaries should be uploaded on the VRE here:

4. WP4 >Task 4.3 Extended Value Chain Analysis >Stage 1- Desktop Review

Information collected in earlier deliverables and work packages (e.g., D2.2, D3.3, D4.1, D4.2) can be used as a starting point for filling in this document

Always work on the principle that it is expedient to reuse data!

Space is provided in each section to record information; please expand this space to the length necessary to describe your VC. The document may become very long, so please refresh and make use of the table of contents and list of tables for ease of navigating the document.

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ii. Aim of this document

To generate an overview of the current performance of the VC in the MRL(i), its interactions with other VC(s) in the MRL (ii), and to what extent it is tele-coupled (iii).
In the desktop review stage, use existing material (secondary sources), including descriptive statistics, where available, to provide a factual basis for understanding the VC performance.
Information collected in earlier deliverables (D2.2, D4.1, D4.2) can be used as a starting point for filling in this document **Always work on the principle that it is expedient to reuse data!**
In the next stage (January-March 2022), interviews will be conducted to fill in information not available via secondary sources and to explore perceptions and preferences of specific local actors in the MRL that may not be captured in published material. Further guidance for Stage 2 will be provided in due course.
It is important to note sources (published review, expert opinion) and, where relevant, provide comment on the reliabilities of sources being used.

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iii. List of acronyms

EVCA	Extended Value Chain Analysis
FTE	Full Time Equivalent
LUS	Land Use System
MRL	Mountain Reference Landscape
MRR	Mountain Reference Region
MS	Member State
NGO	Non-Governmental Organisation
VC	Value Chain

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1. Step 1: Narrative summary

As an initial step, and final step, please provide a narrative summary of your focal value chain identified in Deliverable 4.2.
This is an important step to ensure that partners are clear about the key features and significance of their focal value chain for the purposes of data collection and reporting.

1.1. Initial summary

BEFORE STARTING DATA COLLECTION please draw on your existing knowledge of your focal value chain (including information gathered for earlier deliverables and tasks) to describe your focal value chain in terms of key elements of:

- Territorial capital;
- Practices that characterise the main stages of the value chain (production, processing, distribution and marketing, consumption);
- Types of Actors involved;
- Environmental, soci-cultural and economic values generated at different stages of the chain;
- Enabling environment (infrastructure or governance) and
- Key outcomes (has territorial capital been increased or decreased) in the context of the MRL

An important question to have in mind when writing this initial summary is: ***'what is the point?'*** Recognising that different elements are more or less important in different value chains is important in developing this summary and ensuring that partners focus on important aspects and indicators to assess performance when completing the remainder of this document.

a) **Please use the space below to provide your initial summary** *(max 1 page of text)***:**

The Tête de Moine cheese production represents an emblematic product of the Jura massif, helping to maintain milk production and feeding the regional fabric of the region. The value chain has been able to organize itself and mobilize its territorial resources to form a Protected Designation of Origin (PDO) and bounce back from the constant fall in the price of milk that Switzerland has experienced since the 1990s. It has made it possible to offer a reasonable price for milk and thus maintain the use of pastures and woodlands by cattle livestock. Today, the Tête de Moine value chain faces other threats such as the maintenance of woodland pastures and fodder production as well as its high dependency on public support linked to the Swiss Agricultural Policy. More policy support for better environmental integration in PDOs, as well as the promotion of diversification at farm and territorial level, is therefore needed to increase the resilience of the cheese production and of dairy farmers.
Please use this space to keep track of the sources referred to for this section

1.2. Final summary

After completing data collection (desktop and interview stages) please provide an updated summary of your focal value chain. This should match your final iteration of the VC diagram

a) **Please use the space below to provide your final summary** *(max. 1 page of text)***:**

Overview/Territorial capital

The MRR's main agricultural production is cattle milk production, in line with Swiss mountain agriculture, where the slopes prevent all other agricultural production. Indeed, 70% of Switzerland is covered by mountains (Alps and Jura) and 70% of its useful agricultural area is pastureland (Confédération suisse, 2021). Livestock and the derived products such as milk, cheese and meat are therefore of major importance to Swiss agriculture. In the MRR grassland represents 85% of the UAA in the Bernese Jura and 68% in the canton of Jura.

Overproduction of milk led to the introduction of a milk quota in 1977, which was abolished in the 2007 Agricultural Policy. Since the 1990s, the price of milk has fallen steadily, no longer covering the production cost and forcing many farmers to abandon production. To compensate for the difference between the sales and the production price, Swiss farmers can rely on the system of direct payments, which are subsidies that represent about half of their income, in order to compensate for their protection of the rural landscape (notably wooden pastures, which is a typical landscape of Jura mountains), the environment and the biodiversity (payments for ecosystem services). Agricultural production and income are thus decoupled, which changes profoundly the role of farmers (Barjolle, 2010).

Practices

The *Tête de Moine* value chain is organized by the *interprofession*, which manages the quality and volumes produced by assigning upstream production volumes to the milk producers, the cheese dairies and the refiners. There are nine cheese dairies and two refiners, which are part of the two largest cheese dairies. Refining requires significant infrastructure and investment which implies an imbalance of power between the two large cheese dairies, on which the smaller ones depend on.

The *interprofession* is also responsible for recording and managing the PDO with quality control and promotes the sales. About 60% of the production is exported, mainly to France and Germany which implies a high dependency to the European market and the Euro-Swiss franc exchange rate. The economic crisis of 2008 and the fall in the exchange rate in 2015 have significantly reduced exports. The *Tête de Moine* production is strongly linked (*assemblage*) to *Gruyère*, another major Swiss cheese PDO, to compensate the seasonal mismatch between production and consumption (Magnan, 2015).

Environmental, socio-cultural and economic values generated at different stages of the chain

Faced with the loss of yield due to climate change, the opening of markets with Europe, demographic and economic growth and the increasing scarcity of fossil fuels, production costs are constantly increasing. Switzerland cannot compete with the European market because of its geomorphology and its high cost of living. In addition, there is a duopoly in Switzerland between the two largest retailers (Migros and Coop) who apply high profit margins and strongly influence the pressure on milk prices.

Cheeses with a protected designation of origin (PDO) such as the *Tête de Moine* value chain have helped to secure a better milk price for the farmer and have long been seen as a solution to the milk crisis. This hard cheese is a niche product of high quality, thus justifying its label and relatively high price. It is a unique product because it is consumed with a girolle (invented in 1970), which cuts the cheese into a very thin slice resembling a rose. This innovation has led to a strong increase in sales and production and made it possible to register the product as a luxury and high-quality product. The value chain currently generates 400 jobs in the region and has an annual turnover of more than 80,000 Swiss francs, feeding the regional economic fabric.

Enabling environment (innovation and governance)
The Swiss agricultural policy adapted quite quickly to consider the constraints described above and to promote the link with natural resources and rural landscapes, introducing innovative policy schemes like payments for ecosystems services. The proximity with the Gruyère value chain helped local actors to adopt the same modalities of collective organization. As highlighted in a recent paper on the development of the Gruyère PDO (Le Guerroué et al, 2022), we can identify the main innovations in the production system:

a) The creation of the *interprofession*, the creation of a third-party certification system and the recognition of the PDO represent **organizational innovations** that have enabled both the Gruyère and Tête de Moine value chains to anticipate and adapt to changes brought about by international and national geopolitical developments. b) Scientific research provided knowledge to support the formulation of the new **Swiss differentiation policy**, and support in producing knowledge for professionals in view of the registration and promotion of the PDO.

Collaborations between Gruyère and Tête de Moine value chains are common. The product specifications are similar, and the production zones overlap. This is an advantage for the producers as they can sell the milk for one cheese or the other, in function of market trends. However, this couldn't be possible without a solid interprofessional system.

Key outcomes
Tête de Moine PDO is without any doubts a success story, and the trend gives reason for hope. However, actually the Tête de Moine value chain faces other threats such as the maintenance of woodland pastures and fodder production as well as its high dependency on public support linked to the Swiss Agricultural Policy.

The value chain faces new challenges. On one hand, it will have to meet the high societal expectations in terms of animal welfare and environmental friendliness. It is already doing so, to a large extent, by respecting requirements that are higher than the industry standards in terms of sustainability, with, in particular, the obligation to graze livestock, the majority use of farm fodder, the maintain of family farming on a human scale and the very significant use of new renewable energies.

The objective of the value chain is also to continue to grow in a healthy way by maintaining a high added value for all the partners in the value chain, by developing new products and services, and by improving the quality of the products. This can be done in particular by developing new markets thanks to the innovative promotion methods introduced in recent years.

Maintaining high levels of product quality and protection is also a priority. The value chain will also have to consider the future of the Maison de la Tête de Moine in Bellelay, in the context of the restructuring of the abbey site. In this way, the willingness of the Canton of Berne will probably be decisive.

More policy support for better environmental integration in PDOs, as well as the promotion of diversification at farm and territorial level, is therefore needed to increase the resilience of the cheese production and of dairy farmers. A greater integration of actors (such as Regional Nature Parks) and issues linked to the territory (the enhancement of the landscape heritage of wooded pastures) is necessary to improve the sustainability and resilience of the MRL.

Please use this space to keep track of the sources referred to for this section

Barjolle, D. (2010). La politique agricolesuisse entre économie, écologie et société. *Économie Rurale*, (315), 6–8. https://doi.org/10.4000/economierurale.2510

Confédération suisse. (2021). Géographie. Retrieved Mai 27, 2022, from https://www.eda.admin.ch/aboutswitzerland/fr/home/umwelt/geografie.html

Le Guerroué JL, Barjolle D, Piccin L, (2022) What roles does research play in the development of a geographical indication? The specific case of the Gruyère PDO in Switzerland. *Economie Rurale*, 379/Janvier-mars 2022, 63-83.

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

2. Focal VC Analysis

Information to be recorded in this section relates directly to the focal value chain identified in Deliverable 4.2.

2.1. Step 2 – Describe the general context

a) **What are the main types of territorial capital available in the Mountain Reference Landscape (MRL)?** *Think about different forms of capital (economic, socio-cultural and environmental)*

It is possible to see the territorial capital according to the different processes that chain the focal value chain:

- *Production:* Wooden pastures, meadows, grass and forages, breeds adapted to production, know-how of the producer, geographical indication area.

- *Processing:* Buildings and equipment, cheesemakers, workers, know-how in cheese production, technologies and traceability, quality control and PDO certification.

- *Distribution/marketing:* Food products and regional reputation, selling and business networks and infrastructures, organizational structure, budget for diversification in marketing activities.

- *Consumption:* Girolle®,Fleurolle®,Rosomat®devices, creative capital, image & differentiated quality, gastronomic and touristic activities, notions of tradition and quality transmitted to the consumer.

Please use this space to keep track of the sources referred to for this section

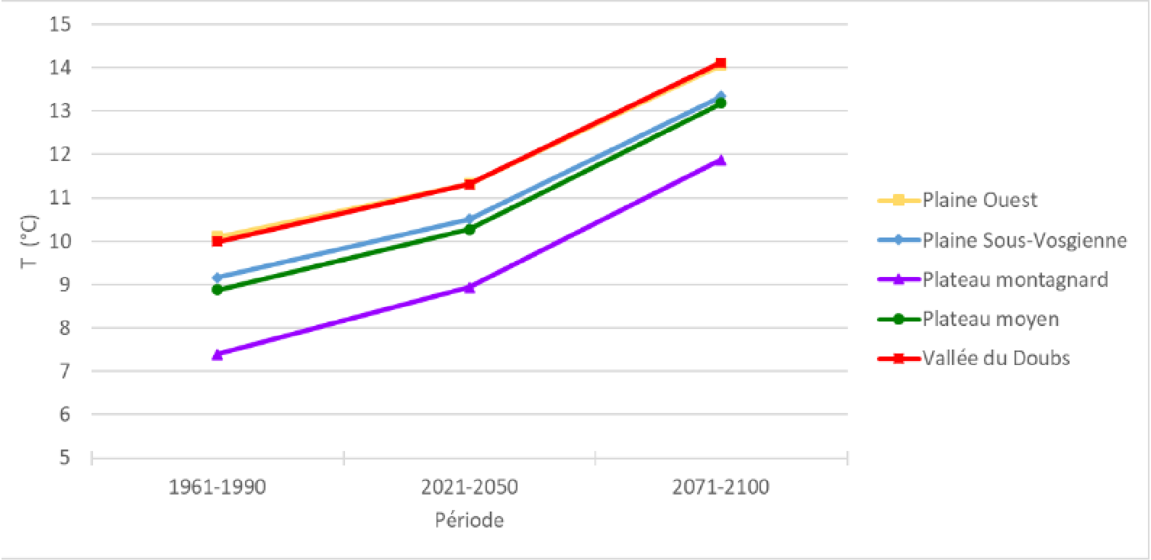
Interviews.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

b) **What are the main sustainable rural development issues present in the MRL?**

Today there are various challenges and problems associated with the sustainable rural development of MRL, such as:

- Climate change: In the Jura region, climate change will be represented basically by changes in temperature, increasing the average temperature, thus affecting forage production (the main resource in the production of Tete de Moine) and, in turn, animal welfare. This increase in temperature can affect milk production due to increased levels of stress and heat stroke in animals. In the graphic below it is possible to see the increase in temperature and the prediction of increase in the near future (2050) and long term (2100).



- Limited production: the recent exponential increase in exports, is pushing Interprofession and the other actors of the value chain to seek alternatives that allow increased production. However, the restricted conditions of the area and societal expectations, search for diversification and sustainable production, and current scenario of climate change, make strategies increasingly difficult.

- Recently, a new problem has arisen, related to the workload of dairy farmers. The farmer has to be present 365 days a year. The new generations seem less and less willing to accept these working conditions. The actors of the value chain are thinking about ways to make the profession more attractive, notably for young generations, or to introduce technical innovations (milking robot) that could alleviate this burden.

Please use this space to keep track of the sources referred to for this section

- Projet Interreg SPAD (2021) OBJECTIF 1 :EVOLUTION DU CLIMAT AU SEIN DES UNITÉS GÉOMORPHOLOGIQUES
- Rapport Annuel 2021 Interprofession Tête de Moine.
- Interviews with the actors of the Tête de Moine Value Chain.
- Participatory workshop.

2.2. Step 3 – Describe the history and trends

b) **What are the final product(s) associated with the VC?** *Think about the different value propositions associated with the product and also include information about different categories of the final product (for example, premium or discount varieties)*

The designation Tête de Moine, Fromage de Bellelay is reserved for cheese that is sold in whole loaves, half loaves or as rosettes packed in rinds. Tête de Moine is not a cheese of very long term keeping: after
selling, its consumption must be carried out in the following weeks, failing which its organoleptic qualities
change and become less appreciated by the consumers. The originality of cheese is to be eaten with a special device, called Girolle. This tool consists of a plate with an axis at its centre, on which the cheese is impaled, prior to install a rotary blade to cut thin cheese rosettes to be eaten by the consumer

- **Tête de Moine AOP (Whole loaves and half loaves)**

Three types of Tête de Moine AOP are on offer: Tête de Moine AOP Classic, Tête de Moine AOP RESERVE and Tête de Moine AOP Bio. The Tête de Moine AOP RESERVE is distinguished from the Tête de Moine AOP Classic primarily through its longer maturity period, which gives it a spicier flavour and more delicate body. The production of Tête de Moine AOP Bio meets the requirements of the specifications of the Bio label.

Maturity period
Tête de Moine AOP (Classic) min. 75 days.
Tête de Moine AOP RESERVE min. 4 months.
Tête de Moine AOP Bio min. 75 days.

- **Rosettes**

The Tête de Moine AOP is not cut, but twisted into fine rosettes with a pairing device such as a Girolle ® or Pirouette® . The paring of the cheese not only modifies the structure of the body but also facilitates the full development of the taste and thus enhanced enjoyment of the Tête de Moine AOP.

- **Other presentations (Recipes)**

This cheese is also usually sold as an accompaniment in traditional recipes such as fondue, where it is presented as one of the main ingredients in the mixture.

Please use this space to keep track of the sources referred to for this section

https://www.tetedemoine.ch/en/products

c) **How long has this VC existed in the MRL?** *Also think about whether this VC typical in the context of the wider MRR and/or Member State (MS)?*

"Tête de Moine" as a proper term has been used since about 1790, but the cheese has a much longer history.

The abbey of Bellelay was established in 1136 and confirmed by Pope Innocent II six years later. As early as 1192, or one century before the beginnings of the Swiss Confederation, the monks of Bellelay were first mentioned in connection with cheese. At that time they paid the annual rent on various properties with cheese made in their abbey. Time and again documents from subsequent centuries mention the use of the valuable cheese as a means of payment.

The oldest description of the Bellelay cheese dates from 1628 and states that a "very fat milk of impeccable quality from the best grasses and herbs of the country is used". During the French Revolution the monks were evicted from the monastery in 1797, but the cheese was still produced in the cheese dairies of the former abbey. By the mid-19th century a farmer from Bellelay, A. Hofstetter, succeeded in boosting production anew when his cheese received awards at the "Concours Universel" of Paris in 1856 and at other trade fairs. Towards the end of the 19th century several village cheese dairies were established. About 10 tons of Tête de Moine AOP were exported to countries as far away as Russia.

At the beginning of the 20th century the making of the cheese gradually shifted from the farms to the village dairies, and by 1950 the annual production had increased to 27,000 kg.

In 1978 the cheese factories owners from the region organized themselves in the association of Tête de Moine Chessemakers. This iconic local cheese was seen as detaining a great potential, the kind of one able to restart cheese production on the plateau. In fact, at the time the low price differential with the milk industry did not compensate the higher costs implied by the ban on feeding silage in cheese supply chain, and the cheese production has almost disappeared. This traditional regional product appeared to them as a product with a great commercial potential if a way to value it and to free it from its demanding mode of consumption, namely scraping the top of the cheese with a knife, would be found. A local company decided then to involve itself in the search for a new way for Tête de Moine valuation. This led to the invention of the «Girolle®» in 1981 (by Nicolas Crevoisier).

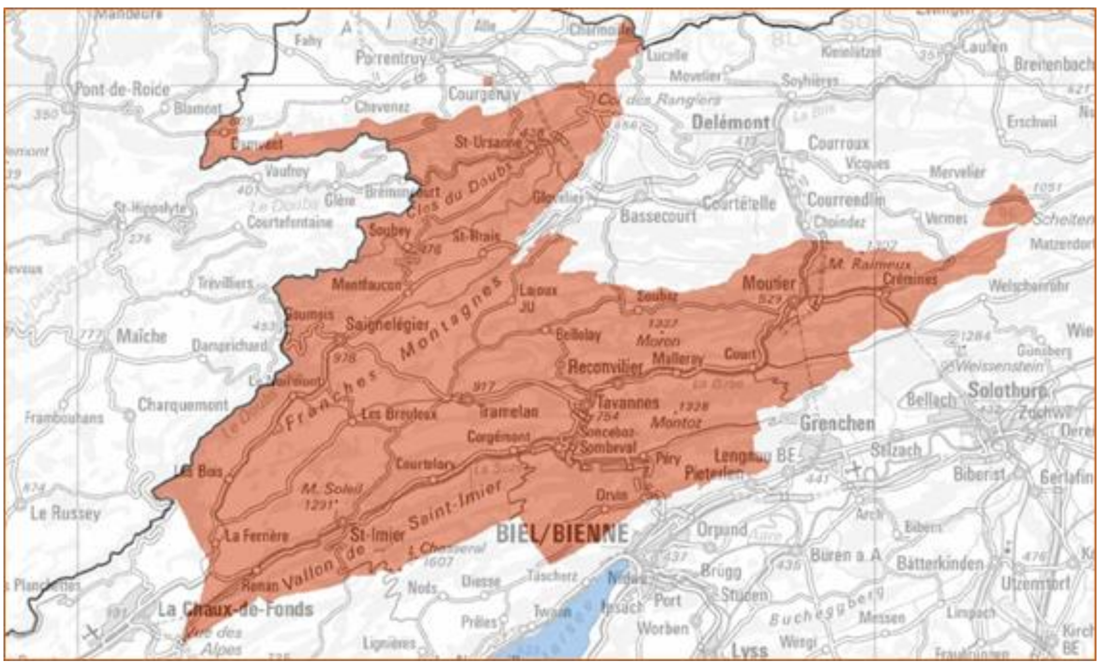
The Girolle (© *Interprofession)*

The introduction of this device changed the way of consumption of this cheese and marked another turning point in the history of Tête de Moine AOP, with 1'560 tons produced in 1999.

It is worth noting, that for this circular blade allows to effectively cut the cheese, the recipe of Tête de Moine had to be slightly changed in order to adjust the texture of the cheese to the use of the tool. This can be considered as a consequence as the true birth of the product as it is known nowadays.

This change had propelled a local production of cheese to a potentially exportable one with a niche luxury market. The 80s decade was the time of the expansion of the cheese mostly on the national market, and it slowly became a popular product amongst Swiss families. The recovery of cheese supply chain was nevertheless still slow, hampered by a general increase in milk prices paid to the producers thanks to the quota, beneficial to the still dominating industrial milk.

This desire for increased competitiveness for Swiss cheese production abroad was reinforced by the introduction of a Controlled Origin system similar to the French one in 1997, and afterwards, two PDO will
integrate into their protected area the Franches-Montagnes : Gruyère and Tête de Moine. For the latter, the creation of the PDO coincides with the creation of an interprofessional office in 1998 and of a producers' association in 2001, legacies of the 1978 cheesemakers' association. In 2001, with the obtaining of the "Appellation d'Origine Controlée" (PDO in french), the production area is limited and so is the production through the use of the "Cahier des charges".



The geographical area as defined in the specifications of the PDO (© Fondation Rurale Interjurassienne)

This Interprofession insured the national and international promotion, the fight against counterfeiting and implemented a strict annual volume management for the PDO cheese, both for producers and processors. It does not however had a direct management system of prices, which remained at the discretion of the operators and depends of the contracts between producers and processors.

With the creation of these structures the Tête de Moine was experiencing unprecedented growth. The supply chain was then oriented by the collective management of both production and processing, the two bodies represented in the Interprofession. But in 2004, the Girolle's patent comes to an end. The authorization to imitate the tool was then open, which could have represented a risk to the product, as bad quality tools downgrades the consumer experience. But on the other hand, the protection provided by the PDO ensured that the only cheese allowed to be consumed with the Girolle or a similar tool was the PDO Tête de Moine, and the Interprofession have managed to protect the product from these cheese counterfeits thus far, and limited the impact of the Girolle's copies.

A few examples of Girolle's copies (© *Luca Piccin*)

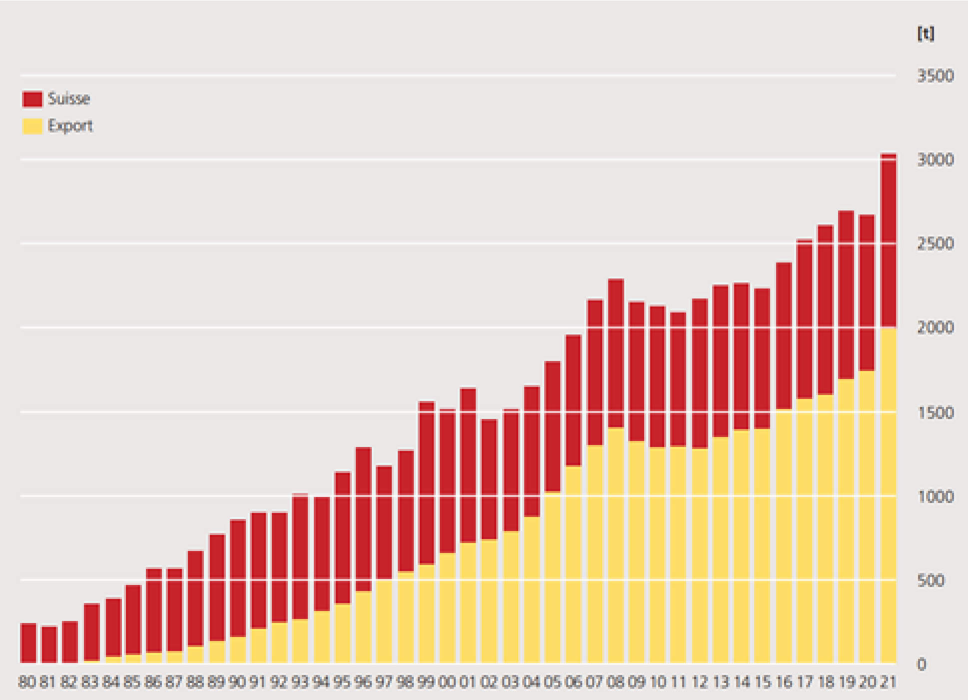
The late 2000s saw the Franches-Montagnes agriculture experimenting a violent crisis. After 2008, agricultural prices, especially in industrial milk, collapsed. And the fluctuations in the following years of the Swiss franc would have weaken the exports of many products, among them the meat, the horses (a typical livestock of the Franches Montagnes) and the cheese. These difficulties had an important impact on prices, while the rising costs of animal feed is felt violently by Switzerland. Some farms continued to give up milking, a too time-demanding production for its profitability. Note that this is also the decade of the organic boom, particularly for milk and cheese sector. While recognizing the organic first appears in the region back to the 90s, it was only later that this movement will grow significantly. All the supply chains, and of course the PDO Tête de Moine, have been observed to develop an organic production branch now.

One of the latest movements of importance was the disappearance of the public milk quota, replaced by private contracts, between producers on one side and associations of producers and processors on the other one. Far from being an end to the control of volume produced, it appeared rather as a shift to a system of private quotas, a passage from a "right to produce" to a private regulation of production. The production volumes are now set monthly by the processors on the basis of a twelfth of former annual quotas, and any over or underproduction results in a downgrading of the payment. This new situation puts a burden on our mainly grassland-based and very seasoned in their milk production dairy systems. To harden that burden, a seasonal variability to monthly volume was added to encourage farmers to get themselves rid of the spring milk peak production. It is worth noting that for the PDOs, this volume control is articulated with the Interprofession volume control, and is overlooked and partially managed by it.

The last event of the agricultural history of our region remains the reform of agricultural policy in 2014. It brought changes for several reasons. The first is an even stronger emphasis on environmental aspects and ecosystemic services of agriculture. So there are nowadays subsidies associated with the quality of the landscape provided to the farmer for its maintenance, as well as to support biodiversity and production systems with high ecological value. The agricultural production subsidies are also changed from a partial coupling between the Livestock Units and the surface to a total coupling to the hectare. All these guidelines have for consequence to reorient the support to the most extensive systems and the ones with the most important surfaces. The systems in the area have then mostly benefited of this reform.

But as the subsidies are coupled to surface, the important size of Franches-Montagnes exploitation compared to the Swiss average create a land rent. As a consequence, the already biggest farms are the most able ones to buy new land, and to obtain more subsidies. This is threatening for our region and the PDO, as this concentration of land and production unit may marginalize small farms and reduce the number of producers, weakening the production in our PDO area and creating the opposite effect of the harmonisation of farm size observed till today (Magnan, 2015).

Tête de Moine PDO has gone through all those crisis, behaving as the most resilient production in the area. This highlights the importance of the PDO and the Interprofession, a managing instance which by controlling volumes, quality and promotion, helped the product to go through crisis. In recent years, thanks to careful partnership work with the public authorities, a strategy for promoting authenticity at local, national and international level has been developed. Together with the introduction of innovations in the presentation of the product, this strategy has enabled sales to grow again, especially in foreign markets.



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Please use this space to keep track of the sources referred to for this section

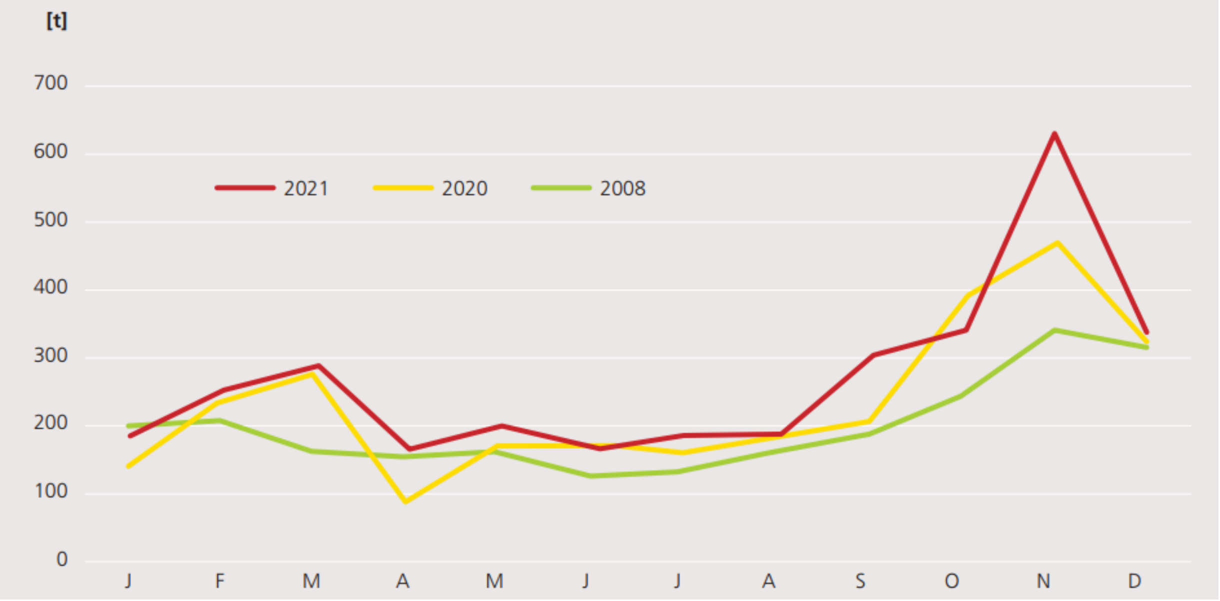
https://www.tetedemoine.ch/en/infos/history

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont.

d) **What are the trends in demand for the VC product(s)?** *Think about past, current, and future demand. Also consider where the demand exists (e.g., local (MRL), regional (MRR), domestic (MS), international…) and any significant differences in types of consumers for the VC products*

Below it is possible to observe the evolution and comparison of the sales of Tête de Moine, in the years 2008, 2020 and 2021 according to the months of the year. The trend shows an increase in sales, where the highest values were obtained for the year 2021, a new record was obtained in the month of November 2021 with 633 tons sold. This environment suggests a positive trend and an increase in the consumption of this product.

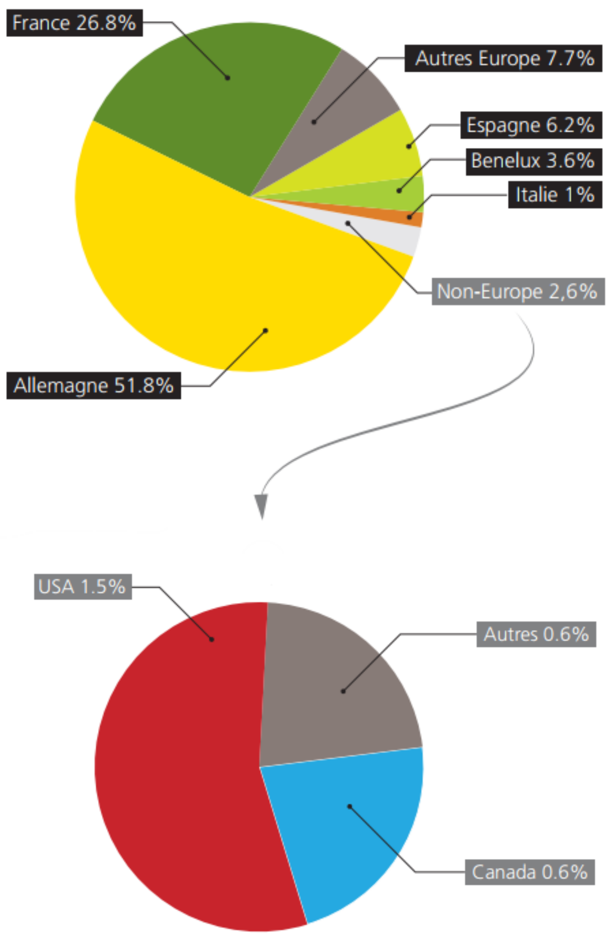


(© *Interprofession)*

In the following graphs it is possible to see the distribution of consuming and importing countries of the Tete de Moine. Where Germany and France are the most important consumers with almost 80% of the total product exported. Also emphasizing that the main consumer continent of Tête de Moine is Europe, followed by the American continent (mainly the United States and Canada).

Exportations en Europe

Allemagne	1032 t
France	535 t
Espagne	123 t
Benelux	72 t
Italie	25 t
Autres Europe	154 t
Sous-total Europe	**1941 t**



Exportations dans le reste du monde

USA	30 t
Canada	11 t
Autres	11 t
Sous-total autres	**52 t**

(© *Interprofession)*

Regarding the types of consumers, these can be divided mainly between Swiss or local and foreign consumers.

For Swiss or local consumers, this is a regional product with a strong connotation of tradition and mostly consumed at the end of the year, notably during Christmas holidays.

For foreing consumers we can find two different groups: European and non-european consumers. European consumers also perceive this product as high quality, traditional and it is mostly consumed at Christmas parties, however it has a very good turnover throughout the year. Non-european consumers, for example, in countries like the United States and Canada, they can perceive it as a luxury product and not accessible to everyone, noting its price that ranges from 80 US dollars per kilogram of Tête de Moine cheese compared to Switzerland or France where it can be in 25 US dollars per kilogram. In addition to the Girolle, which can cost close to 50 US dollars and is necessary for the way in which the product is consumed.

Please use this space to keep track of the sources referred to for this section

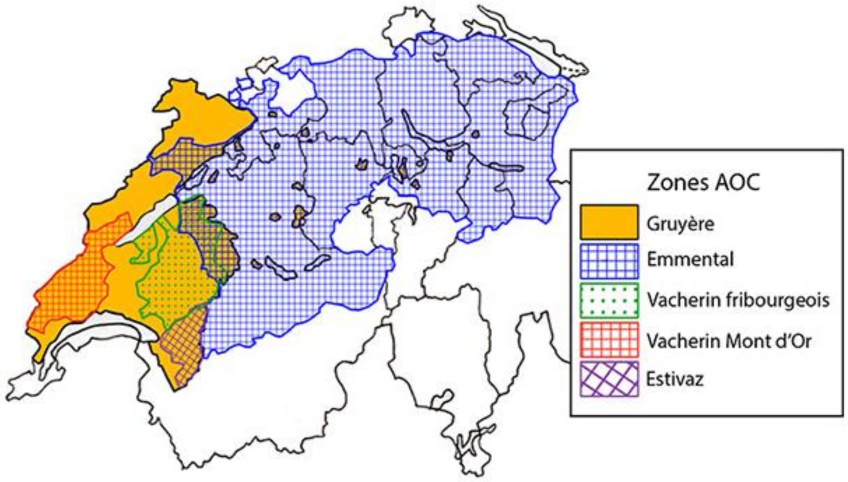
- Rapport Annuel 2021 Interprofession Tête de Moine (graphs and data).
- https://www.murrayscheese.com/tete-de-moine
- https://igourmet.com/products/tete-de-moine-cheese-aop

e) **What is the nature of competition for the VC products?** *Think about how alternative/substitute products in the MRL influence demand, as well as competition from outside of the MRL.*

As a Geographical Indication, Tête de Moine PDO appears as a protected production distinguished by its particular market segmentation. More particularly, and prior to the PDO, it is inseparable from its culinary device, the Girolle, and it is consumed in a seasonal way, especially for winter celebrations in Switzerland, or offered as a gift. Abroad, it is mainly present on the luxury food market, in France and Germany in particular.

Although the Tête de Moine is a product with very particular characteristics in terms of its taste profile and way of consumption, which makes it difficult to copy or replace, there are some cases such as the following:

- Competition with others cheeses specialties (PDOs) that could replace it (Gruyère, Emmentaler, Etivaz, Tilsiter, Vacherin).



Localisation of five PDO cheeses value chains in Switzerland (Jeanneaux, 2018)

- Industrial milk for other kinds of dairy products. It's worth noting that even industrial milk and cheese can come from organic farming.

Please use this space to keep track of the sources referred to for this section

https://www.cheesesfromswitzerland.com/en/cheese-varieties

Jeanneaux, Ph., 2018. *Stratégies des filières fromagères sous AOP en Europe. Modes de régulation et performance économique*, Quae Ed.

2.3. Step 4 – Describe the structure of the VC

2.3.1. Practices

Each practice represents a stage in the VC, moving through the following typology:
Production >> Processing >> Distribution & marketing >> Consumption.

a) Please note all the relevant practices at each stage of your focal VC using Table 1.

Table 1: List of practices in the focal VC by type

Practice type	List of Practices
Production	- Milking (everyday)

Think about all the practices involved in production of commodities on which the final product(s) are based.	- Transportation and delivery process (No more than 24 hours after milking) - Organization and planning of production according to the guidelines of the Interprofession TdM (Quantities of milk and production seasons) - Purchase of supplies (Fertilizers, animal feed) - Management of soil (fertilizing, crop planning and rotation). - Adaptation of the area for the stay of the animals and the milking process. - Organizing and maintenance of machinery.
Processing *Think about all the activities which involve transformation of commodities into the final product(s).*	- Quality control of raw material (Dairies) - Heating (30º-32º C). - Addition of lactic cultures and rennet. - Cut of cheese grains (separation of the lactoserum) - Molding (cilindrical traditional shape) and identification. - Pessing and Turn (first 24 hours) - Brine bath (No more than 24 hours) - Cellars (RH 90%, 13ºC) - Regular brushing with water and salt. - Monitoring of maturation and quality during the aging process. - Packing, storage and delivery.
Distribution and Marketing *Think about practices relevant to how the product is provided to the consumer.*	- Promotion activities in domestic and international market - International trade administrative processes - Transport of merchandise to the different distributors (exportations or national distributors) - Certifications and quality control
Consumption *Think about practices relevant to consumption of the end product(s).*	- Domestic consumption (40%) - International consumption (60%) - Events (tasting and demonstration of the products)
Please use this space to keep track of the sources referred to for this section Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont https://www.youtube.com/watch?v=0D8SnS6pHa4 (Cheesemaking from Tête de Moine)	

b) **How are the practices identified above assembled into the focal value chain?** *Think about the sequence of practices and note the connections (this will help in developing the VC diagram, and vice versa)*

In this value chain, most of the activities are coordinated by a main body that is the Interprofession Tête de Moine, generating a direct connection between all the stages.

- **Production**: In this step, the main resource of the region, forage, is used to generate a transformation and recovery in the following steps through the production of cheese.
- **Processing**: The know-how of the dairies makes all the production steps and continuous quality control activities, adding values to the final product.
- **Distribution & Marketing**: The great investment and effort that is put into the communication and valorization strategies of the product, make it widely known and valued not only at the national level, but mainly at the international level. It is a key step, since the quality of the product and its unique values need to be expressed and communicated to be understood by the final consumer.
- **Consumption**: The way in which this product is consumed, through the formation of rosettes using the Girolle, makes it a very particular case. The conditions for its consumption are special and it is not easy to consume it without this tool, since it can end up affecting the sensory profile and its final qualitative perception.

<u>Please use this space to keep track of the sources referred to for this section</u>

Interviews with the actors of the Value Chain Tête de Moine.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

c) **What are the individual attitudes and habits that shape these practices?** *Interviews will be helpful in answering this question, but also consider previous research, etc.*

- **Production**

Cooperative organization with other producers and the Interprofession.

Knowledge and pride in their landscape and product: mountain milk that will be transformed into Tête de Moine AOP.

Face challenges in terms of production (climate change, prices, phytosanitary management, forage availability, cahier des charges).

Continuous training and updating of knowledge

- **Processing**

Proximity to producers

Innovation in practices and equipment without losing traditional know-how

Quality management and monitoring of the cahier des charges

- **Distribution & Marketing**

Promotion of the product, its history, form of consumption and superior quality (storytelling)

Wide immersion in international markets, using the recognition of the swiss landscape and high quality products production

International relations and distribution network (business and convince skills)

- **Consumption**

Use of the Girolle and the rosettes, as a particular, aesthetic and different way of consuming a product such as cheese Tastings, contests and party atmosphere to publicize and relate this product to the consumer
Please use this space to keep track of the sources referred to for this section Interviews with the actors of the Value Chain Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

d) **What relationships and collaborations are there that shape these practices?** *Interviews will be helpful in answering this question, but also consider previous research, etc.*

The relationship and central axis of this value chain is the Interprofession Tête de Moine, from it, it is possible to find all the other actors linked, relating and making decisions among themselves. However there are other collaborations and relationships on a smaller scale within the chain, for example: - APLT (Association of TdM Milk Producers): Representing milk producers for the production of Tête de Moine - AFT (Association of TdM Cheese makers): Representing the refiners and dairies dedicated mostly to the production and marketing of tete de moine - Switzerland Cheese Marketing: representing the part of marketing, however linked to other swiss specialty cheeses. This organization generally manages all the marketing of swiss cheeses, mostly at an international level.
Please use this space to keep track of the sources referred to for this section Interviews with the actors of the Value Chain

e) **What are the main knowledge ('know-what' and 'know-how') and skills used in VC practices?** *Think about each practice type (production, processing, distribution/marketing, consumption).*

- ***Production***: Production of grass and forages, haymaking and storage, animal care, milking of cows, barn and machinery management, milk collection and delivery. - ***Processing***: Production process and traditional know-how about cheese making. Quality control. - ***Distribution/marketing***: Storytelling, promotion of the cheese image, contacts and network business, quality promotion.

- ***Consumption****:*
  Utilization of the Girolle, consumption in Rosettes.

Please use this space to keep track of the sources referred to for this section

Interviews with the actors of the Value Chain

Annual reports of the Interprofession Tête de Moine

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

f) Please note which elements of territorial capital enter your focal VC at each stage using Table 2.

Table 2: Territorial capital entering the VC at different practice stages

Practice stage	Territorial capitals entering the VC
Production	Wooden pastures Meadows Grass and forages Cows Knowledge of the know-how of the producer Geographical indication area (PDO)  *Wooden pastures (© Interprofession TdM)*
Processing	Buildings and equipment Cheesemakers Workers Know-how in cheese production Technologies and traceability

	Quality control Certification PDO.  *“Taxation” is a procedure aiming to control and evaluate the quality of the cheese, following shared rules, registered in the specifications of the PDO (© Interprofession TdM)*.
Distribution and Marketing	Identity of food products and regional reputation Selling and business networks and infrastructures Organizational structure (relations between retailers, diairies, interprofession management board). Budget for diversification in marketing activities.  *Tasting “rosettes” in Barcelona with a Rosomat, an automatic machine introduced in 2015, which allows to prepare “rosettes” in a professional way and without effort. The introduction of this machine, made in Switzerland, has helped to develop sales. The machine is in fact promoted and sold beyond the borders. This has also allowed to develop the sale of prepackaged rosettes (Photo: Linkedin.com)*

Consumption	Girolle®,Fleurolle®,Rosomat®devices Creative capital Image & differentiated quality Gastronomic and touristic activities Notion of tradition and quality transmitted to the consumer.  *In March 2022 Tête de Moine won a «World Champion Cheese» award in the USA. The jury was selected by the WISCONSIN CHEESE MAKERS ASSOCIATION, which communicated on the Linkedin network as follows: « Holy Girolle! Even our cheese judges seem impressed with this beautiful way to serve and present cheese ». (Source: Linkedin.com)*
Please use this space to keep track of the sources referred to for this section Interviews, Linkedin (for some of the photos).	

g) **Have the practices in your focal VC been adapted to suit the territorial capital specific to your MRL?** *If so, in what ways? How does this affect the way your focal VC behaves compared to other areas?*

The practices are well adapted above all because they are traditional. Then, because of the effect of the PDO certification. The specifications book (Cahier des charges) enhance the links between the product value chain and the territory, their actors and characteristics (landscape, grass, milk production, know-how about cheese making…).

Tête de Moine is a semi-hard cheese made from raw milk, and therefore the milk must be processed within 24 hours after the milking in the farm.


Milk is collected daily in small quantities from family farms (© Interprofession TdM).

The cheese is heated up to 38 degrees, then the lactic acid bacteria and rennet are added to ensure curdling.


Adding rennet to the milk (© Interprofession TdM).

The curd is cut, to obtain fragments with a size of rice grains, and then heated between 46 and 53 degrees during 30 minutes.


Cutting the curd (© Interprofession TdM).

The curd is then separated from the whey, placed in stacks, then drained and pressed.


Putting the curd in stacks (© Interprofession TdM).

The molds obtained are then placed during at least 12 hours in a salted water bath.

The future cheeses descend into the salt bath (© Interprofession TdM).

After that, they are put in the cellar between 11 and 14 degrees (and ideally between 13 and 14 degrees) and 90% humidity for at least 2,5 months for refining. During this period they will be regularly washed. The overall mass yield of this processing is about 9%.

Putting cheeses in the cellars for refining (© Fondation Rurale Interjurassienne)

According to the PDO specifications, the produced cheese pieces are units of between 0,7 and 2 kg, usually between 800 and 900 grams.

Please use this space to keep track of the sources referred to for this section

Interviews, Tête de Moine PDO specifications.

****To help with the WP5 clustering, please also consider the following questions on the topic of innovation****

h) **Are there examples of innovation in practices within your focal VC?** *Consider the following questions (I – VIII), noting your answers in the space/tables provided:*

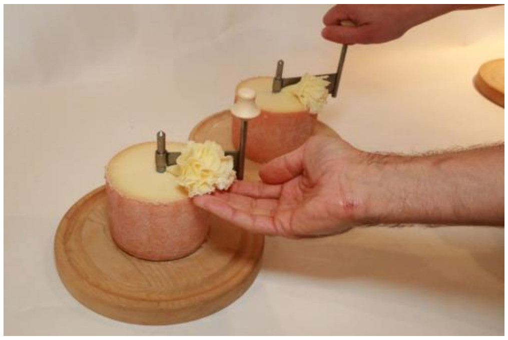
I. **Are there examples of new[1] final products (or inputs for the next stage) being produced?** *(Note in Table 3)*

II. **Are there new by-products being produced? – and what VCs do they enter?** *(Note in Table 3)*

Table 3: New products and by-products produced at different VC stages

	New products	**New by-products** *(also noting which VCs they enter)*
Production		
Processing	Prepackaged fondue Tête de Moine	
Distribution & Marketing	**Prepackaged rosettes**  *Promotional offer in a french retail chain (07/2021 - Linkedin.com)*	**Mix with other kind of products (cured meat or "charcuterie")** *(See illustrations above in step 3a)*

[1] New means was not typical practice for this VC stage in the previous decade.

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td><u>Consumption</u></td><td>Rosettes ready to eat

© Olivier Boillat

Fondue mixture

(see illustrations above in 2.2 - step 3a)</td><td></td></tr>
<tr><td colspan="3"><u>Please use this space to keep track of the sources referred to for this section</u>

Interviews, participant observation

www.tetedemoine.ch

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) L’univers de la Tête de Moine, Ed. D+P SA, Delémont</td></tr>
</table>

III. **Using Table 4, please note new processing techniques being used – and their associated motivation** *(e.g. to reduce environmental footprint, to reduce economic costs, other?)*

Table 4: New processing techniques in VC

New processing techniques	Motivation
Machine for turning and brushing cheese during the ripening process.	Optimization of time and resources in a process that was previously completely manual and that does not affect the final quality of the product.
Production and package of Rosettes.	It is not necessary for the consumer to buy the Girolle to taste this cheese. Easy to transport and ready to eat and share, making the consumption easier.
Combination with other products (ready to eat).	To show to the consumer the different ways to eat this cheese, and other occasions (Not just typical dates as Christmas), even other seasons.

Vending machines (see Table 6)	Facilitate access to the product and offer it in a modern way.
Please use this space to keep track of the sources referred to for this section Interviews; participant observation.	

IV. **Using Table 5, please note new marketing or distribution approaches being used – and their associated motivation** *(e.g. to reduce environmental footprint, to reduce economic costs, other?)*

Table 5: New marketing and distribution techniques in VC

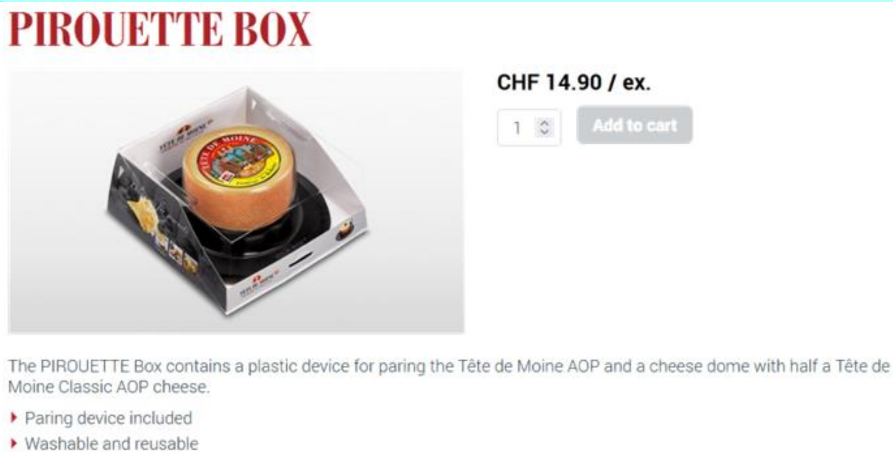
New marketing or distribution approaches	Motivation
Production for big supermarkets chains (Coop, Lidl, Migros) in association with private labels	Expand the market producing for private labels
Reach new markets internationally (Asia, America)	Business expansion, perception of this type of product as "Luxury"
Please use this space to keep track of the sources referred to for this section Interviews	

V. **Please note what form of digital technologies are used in each stage of the VC using Table 6** *(e.g., e-commerce)*

Table 6: Digital technologies used in different VC stages

	Digital technologies
Production	- **Data monitoring and production control (temperature, bacterias, etc.)**

	 *Exemple: the milk is extracted under very strict sanitary conditions. The cows' udders are cleaned with natural products, and the milk is sent directly to temperature-controlled tanks (max: 18°C), where it remains until it is delivered to the dairy, a few kilometers away. Farmers regularly check various parameters such as the bacterial load to provide top-quality raw milk.*
Processing	- **Data monitoring and production control (temperature, bacterias, proteins, fats, etc.)**  Exemple: *Fromagerie Spielhofer (a dairy) purchased a **cheese aging automated machine**. This machine is Swiss made, as it was designed and assembled by Patrick Concept SA, a company specialized in engineering automation and industrial solutions.*
Distribution & Marketing	- **E-commerce, internet sales and marketing**

	 *The arrival of the Internet has undoubtedly contributed to the growth of sales. This image from the official Tête de Moine website shows how it is possible to find out different types of offers, in this case half a Tête de Moine with its Pirouette device. This is a lighter (plastic) and cheaper tool than the Girolle. It has been developed to promote coupled sales of the cheese and its paired device. This highlights the importance of having adequate digital infrastructures, as is the case in Switzerland (© tetedemoine.ch).* - **Vending machines**  *Automated vending machines (© tetedemoine.ch)*.
Consumption	- **Promotion in social media (Recipes, ways of consumption, different presentations, tasting seasons)**

Exemple: Linkedin promotional post (06/2021) from a sales manager from Fromi. Based on their website "Fromi is one of the leading exporters of French gastronomic products. Founded in 1969 by Xavier David, Fromi was initially specialised in the distribution of French cheeses abroad, until it extended its activity to delicatessen products with talent! 45 years of know-how and experience on the international market (60 countries) have made Fromi a trusted and renowned partner. Today, Fromi works daily with more than 400 French and European suppliers".

Please use this space to keep track of the sources referred to for this section

Interviews

Interprofession Tête de Moine (images)

VI. Are there any other innovations in your focal VC not covered above?

No

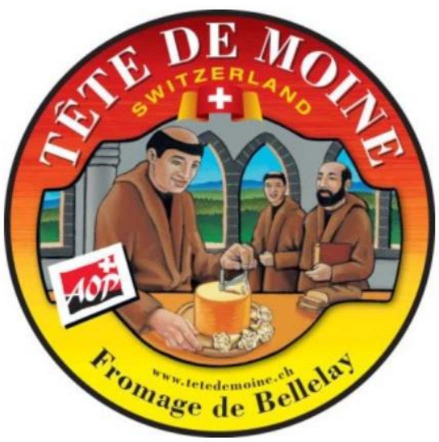
Please use this space to keep track of the sources referred to for this section

VII. Check *Annex 4 (D11 – 21)* for information about the region's performance using patents and other indicators of innovations, and comment on how these might be relevant to the VC in your case.

The use of resources like PDO "Tête de Moine" protection, Girolle and Rosomat (register brands) provide to this production chain some differential values that are very difficult to substitute for others and are related to the intellectual property developed in this territory and the final differential characteristics of the product.

The protected area of production, which includes all the "know-how" and special quality of the raw material, in addition to the particular way of consuming the cheese to take advantage of all its organoleptic characteristics and flavor profile, make these conditions very important in the value chain.

Everything is linked to the specifications: the quality scheme for both the for the producer, the cheese maker, but also the ripeners. Traceability with the numbered casein mark was applied whereas it was a utopia in the 90s. Black market for cheese is now a distant memory. The promotion of the product is based on clear and precise rules by putting forward a brand name linked to flawless labelling. Thanks to this new standard, all packaging on the market systematically applies the brand Tête de Moine AOP Switzerland (see below). The promotional focus is on raw milk cheese based on modern artisanal production.



The brand Tête de Moine AOP Switzerland

Please use this space to keep track of the sources referred to for this section

Interviews

Tête de Moine PDO specifications

VIII. What do the innovations identified mean for the performance of your focal VC?

- PDO: protected area and know how, it is not possible to develop an equal product in another territory, and this generates an added value to the product
- New technological adaptations in the production process: optimization of time and resources in a process that was previously completely manual and that does not affect the final quality of the product.


In all the cellars, robots have almost completely replaced humans for the task of turning and cleaning the cheeses (© Interprofession TdM).

- GIROLLE & ROSOMAT: The consumption of the product in Rosettes is directly linked to the use of tools such as the Girolle, the Fleurolle and the Rosomat, which allow these forms to be obtained, facilitating the perception of all the flavors and organoleptic characteristics of the product.

These innovations are important because they allow to obtain the singularisation of agri-food products, which requires a considerable amount of "cultural capital" in the form of highly specialised gastronomic knowledge, together with a clear conviction that "authentic" foods embody a set of virtues that their industrially produced counterparts lack.

This position is echoed by other proposals put forward by authors such as Lash and Urry (1994), who point to the central role of the "economy of signs" and the "consumption of meaning" in post-industrial society. This refers to a communication perspective (Brunori, 2007), in which the new functions granted to this new rurality are now linked to its nature as an object of consumption in post-industrial societies. In short, the consubstantial elements of a particular ecology, tradition and history are incorporated as distinctive components of these local products, and it is from this transfer of social meanings that they achieve their differential characteristics in the face of increasingly global markets.

The distinctiveness that is constructed within the PDO is associated with a quality differential of the certified foods or if we are witnessing a mere "selling of singularities" as a marketing strategy aimed at a global market of "territorialized foods".

After the obtention of the PDO, the actors of the value chain developed a "distinctiveness strategy" based on valuation processes (Jeannerat and Kebir, 2015) through which the uniqueness of the product is constructed by means of a complex synthesis between traditional uses and technical innovations.

<u>Please use this space to keep track of the sources referred to for this section</u>

Interviews and workshop

Brunori, G. (2007) Local food and alternative food networks: a communication perspective, *Anthropology of food* [Online], S2 | March 2007, Online since 19 avril 2007, connection on 18 juin

2022. URL : http://journals.openedition.org/aof/430 ; DOI : https://doi.org/10.4000/aof.430

Jeannerat H., Kebir L, (2015) Knowledge, Resources and Markets: What Economic System of Valuation? *Regional Studies*

Lash, S., & Urry, J. (1994). Economies of signs and space. London: Sage.

****To help with the WP5 clustering, please also consider the following questions relating to the governance structure of the overall VC****

i) **Which of the following definitions best fits the MRL VC?** *(And explain why)*[2]*:*

- **Market** *(low complexity of transactions*[3]*, high ability to codify transactions, high supply base capability, low power asymmetry)*
- **Modular** *(high complexity of transactions, high ability to codify transactions, high supply base capability, medium power asymmetry)*
- **Relational** *(high complexity of transactions, low ability to codify transactions, high supply base capability, medium power asymmetry)*
- **Captive** *(high complexity of transactions, high ability to codify transactions, low supply base capability, medium to high power asymmetry)*
- **Hierarchy** *(high complexity of transactions, low ability to codify transactions, low supply base capability, high power asymmetry)*

It is a competitive **market** where the key factor is the size of the reference market. In other words, the area in which there is competition. For Tête de Moine PDO, this is at least the European market, since there is a free market between the EU and Switzerland for cheese. But the European cheese market is extremely vast: there are many competitors. There are dozens, even hundreds of hard cheeses in Europe, which are direct competitors of Tête de Moine PDO, which account for less than 1% of the total market. There is therefore no possibility for the Tête de Moine PDO value chain to artificially raise prices, a strategy which would effectively constitute a barrier to competition. If prices rise up, it is just because the product is of good quality and consumers are looking for it.

That said, it's important to think about the context of Swiss and European markets. The environment of the supply chain evolved in a complex way in the last 10 years. Since the abandonment of the "yellow line" during the 2000s, the once protected milk market was partially liberalized. After 1 May 2009, like other cheese productions, the end of milk quotas has led to the privatization of the management of milk volumes. In fact, they are now subjects to the conditions of the milk buyer, replacing the public quota. This translation from an annual public right to produce to a monthly regulation made by the cheesemakers to deliver milk had been troublesome for farmers, but is now mainly accepted.
As in other European countries, producers have had to deal with an increased price volatility since the 2000s, especially post-2008, and a significant loss in farm numbers. These phenomena, however, is less pronounced than in the neighbouring France, thanks to a strong agricultural policy that protects farm through subsidies, thus insuring an encouraging income to agricultural activity. The protection of

[2] Optional: consider D22 – 25 and D30 in Annex 4 as sources to benchmark the VC governance typology with broader regional trends.

[3] Transactions are the exchange practices (monetary or otherwise) involved in a trade between a buyer and seller.

the inner market also reduce crisis through lower feed prices than in EU.

The price difference between cheese milk and industrial milk is important today. This seems to reflect at same time the large outcomes of the cheese supply chain compared to the industrial milk's one, and the protected state of industrial milk. This reality makes nevertheless the industrial milk production in our area of study a less profitable production than PDO cheese milk, and the farms involved in industrial milk has became a potential recruitment ground for PDO milk production in case of a potential future need for milk volume.

Please use this space to keep track of the sources referred to for this section

Interviews, workshop.

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

j) **Have there been innovations in how the VC is governed?** *(e.g., new cooperative processes; new participatory or democratic institutions developed; new knowledge collaborations)*

The first innovation was the interprofession, introduced at the end of the 1990s. As mentioned before, the interprofession manages the quality and volumes produced by assigning upstream production volumes to the milk producers, the cheese dairies and the refiners. The interprofession is also responsible for recording and managing the PDO with quality control and promoting the cheese.

Over the last 15 years, a joint strategy has been developed to enhance "consumer stage experiences", both locally (guided tours, tastings, festivals and events, medias) and nationally and internationally (wide communication and promotions, social media marketing, presence in foreign sales outlets, strategic partnerships, etc.). This strategy is shared by the interprofessional and tourist actors and cantonal institutions, at local level; and with the help of the Swiss confederation, the swiss marketing board and the Swiss PDO-IGP association, outside the MRL. Marketing costs are significant to promote the product to distributors and customers are, according to the Interprofession, about 10 times more expensive than those of a French PDO for an equivalent volume of production. Hopefully, the existence of the PDO allows these costs to be half funded by the Swiss federal state, and hence increases the competitiveness of the sector by increasing the financial means of promotion.

Please use this space to keep track of the sources referred to for this section

Interviews, workshop.

k) What do these VC governance structures mean for the performance of the VC?

Tête de Moine PDO is a product amongst the more variable ones in terms intra-annual price variation within cheese. This is linked to a variable consumption dynamic due to its nature of special cheese with a luxury and seasoned niche market. The Tête de Moine production is also highly seasonal because of the importance of grassland in PDO area, implying a higher production during summer pasture months, and this amplify the intra-annual variation effect on milk price. The cheese dairies try to offset and

absorb the summer production peak by modulating the milk price, becoming lower in the first part of the year, and higher in the second. They also introduced new cheeses and specialties.
The drastic volume management provided by the interprofession seems to maintain prices by controlling sales volumes, and even by reducing it when needed. For example in 2015, the market collapse during the summertime due to the depreciation of Swiss franc has led the Interprofession to reduce production up to 20% during these summer months, act which has succeeded in maintaining the price of PDO milk (Magnan, 2015). The Interprofession is financed by processors and producers of the supply chain, and aims to manage the volumes produced, to guarantee the quality of production, to assure the promotion of the product and of the PDO and to fight against counterfeiting. To fulfil this goals, the management of the production volumes is of key importance for the sector. The Interprofession plays an important role in the resilience of the chain and in the stability of the remuneration of its actors. It is an efficient shield for the stakeholders against the market volatility, and the herald of the equal repartition of the weight of crisis between the different actors.

The multilocal strategy implemented in the last 15 years by the actors involved in the valorisation of Tête de Moine PDO highlights the need to go beyond policy approaches traditionally focused on techno-science transfers. Territorial innovation must be understood in a broader economic system of valuation institutionalized on various spatial scales and organized across interdependent milieus of production, control, intermediation and consumption.

Please use this space to keep track of the sources referred to for this section

Interviews

Annual reports of the interprofession Tête de Moine

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

2.3.2. Actors

Actors in the VC should be listed based on the following typology:
Land-Use System (LUS) manager[4]; Non-Governmental Organisation (NGO); civil society; broker/advisor; business (agri); business (non-agri); public sector; research; other.

The categories in this typology are not necessarily mutually exclusive and partners should be guided by the main expertise and interests of the actor in the context of the focal VC. It also may be possible for the same actor(s) be involved in more than one practice in the VC (e.g., production and processing), therefore should be noted in relation to each relevant type.

a) Please note all the actors involved in your focal VC using Table 7:

[4] Formerly referred to as 'producer' (LUS manager reflecting this as a broader category)

Table 7: List of actors in the focal VC by type

Actor type	List of actors
Land-Use System (LUS) manager *Think about all the actors that manage land that generates inputs or is used for producing commodities for processing in the focal VC.*	- APLT (Association of TdM Milk Producers): Representing milk producers for the production of Tête de Moine: 237 dairy farms - AFT (Association of TdM Cheese makers): Representing the refiners and dairies dedicated mostly to the production and marketing of tete de moine: 9 cheese dairies (6 village dairies, 2 farm producers and the Maison de la Tête de Moine)/ 2 affineurs
NGO *Think about all the actors that work in Non-Governmental Organisations that are involved in the focal VC or enabling environment (they may own land, implement projects, or provide training)*	- FRIJ (Fondation Rurale Interjurassienne) - Interprofession “Tête de Moine” (Siegenthaler Martin)
Civil society *Think about all the non-organised actors that may be involved in the focal VC or the enabling environment as critizens or activitists.*	- Parc Naturel du Doubs - Parc Naturel du Chasseral - Jura Tourisme - Jura Bernois Tourisme
Broker/advisor *Think about actors such as innovation brokers, extension officers, business advisors that engage directly in the focal VC.*	- Interprofession (Siegenthaler Martin) - Fromarte - OFAG (Office fédéral de l'agriculture) Département fédéral de l’économie, de la formation et de la recherche DEFR Secteur Promotion de la qualité et des ventes. - AOP-IGP Suisse - Chambre d’Agriculture (Jura et Jura Bernois)
Business (agri) *Think about all the actors in businesses either on-farm or beyond the farmgate (but still agricultural) that are involved in focal VC.*	- AFT (Association of TdM Cheese makers): Representing the refiners and dairies dedicated mostly to the production and marketing of tete de moine: 9 cheese dairies (6 village dairies, 2 farm producers and the Maison de la Tête de Moine)/ 2 affineurs - MIBA (milk producers cooperative) - EMMI (Swiss milk processor and dairy products multinational company)
Business (non-agri) *Think about all the actors that are either non-agricultural businesses or*	- Restaurants and promoters of terroir products - Large and medium surfaces (Coop, Migros in Switzerland) - Fromi and other distributors

diversified (non-agri) on-farm enterprises within the focal VC.	
Public sector *Think about all the actors that exist as public authorities or have policy-making responsibilities affecting the focal VC.*	- Chambre d'Agriculture - Swiss Ministry of Agriculture - Canton of Jura and Jura Bernois - Entities dedicated to scientific research
Research *Think about all the actors involved in research affecting the focal VC.*	- Entities dedicated to scientific research (national and international level) like ETH Zurich, Université de Lausanne, Agroscope, etc.
Other *Think about other actors involved in the focal VC that don't fit well within any of the types listed above.*	- Swiss Cheese Marketing

b) **How many, and in what proportion, are actors in the focal value chain distributed in terms of the characteristics noted in Table 8?** *Please note, exact figures are not required – instead record orders of magnitude and include any further commentary to support understanding.*

Table 8: Numbers and key characteristics of actors involved in the focal VC

Practice type	Number of actors	Distribution of gendered roles *(Male, female, other)*	Participation of Young people *(<25, 25-40, >40)*	Ethnic origin	'Incomers' to the MRL
Production	237 producers	Mainly Male		-	
Processing	9 cheese dairies (6 village dairies, 2 farm producers and the Maison de la Tête de Moine) 2 Affineurs	Mainly Male		There are some workers coming from outside Switzerland. For exemple in cheese shops or in the dairies.	-
Distribution & Marketing	2 Affineurs & Exporters 1 Switzerland Cheese marketing organization	Mainly Male	-	-	-

Consumption	Switzerland & European countries as main consumers (3000 tons in 2021)	-	-	-	-
Space to include any further commentary relating to actor characteristics **For most of the stages of the production chain it is difficult to know the exact values of participation in some categories, however some precisions and general data observed during the field work are given.**					
Please use this space to keep track of the sources referred to for this section - Rapport Annuel 2021 Interprofession Tête de Moine.					

c) **For each actor type in the VC, consider trends in business models according to the typologies representing columns in Table 9.** *Please note any exceptions or outliers to the main trends as appropriate.*

Table 9: Business model trends by actor type in the focal VC

Actor type	Size[5] *(Small, medium, large)*	Business structure/ ownership[6] *(Sole proprietor, cooperative, partnership, LLC, corporation)*	Market orientation *(For profit, not-for-profit)*	Level of technological innovation/uptake *(Low, average, advanced)*
LUS manager	Small	Sole proprietor	For profit	Average
NGO	Medium	Cooperative -Partnership	For profit	Advanced
Civil society	Small	Cooperative -Partnership	Not for profit	Advanced
Broker/advisor	Medium	Cooperative -Partnership-Corporation	For profit	Advanced
Business (agri)	Medium	Corporation-Cooperative	For profit	Advanced

[5] Small = fewer than 50 persons; Medium = fewer than 250 employees; Large = higher than figures for medium.

[6] https://www.g2.com/articles/types-of-business-ownership

Business (non-agri)	Medium - Large	Corporation	For profit	Advanced
Public sector	Large	Cooperative -Partnership	Not for profit	Advanced
Research	Small	Cooperative -Partnership	Not for profit	Advanced
Other				
Please use this space to record information on exceptions and outliers to the main trends characterising each actor type				
Please use this space to keep track of the sources referred to for this section Interviews.				

2.3.3. Flows

In this section we are interested in VC inputs and outputs – we refer to these **outputs-inputs as the 'flows' in the VC**, which move between stages, enter (in the form of territorial capital) and leave the chain (in the form of by-products or externalities[7]), and eventually become the final product. These can be in tangible and intangible forms, including:

- Physical materials/products (e.g. grain, milk, pollutants)
- Information and meaning (e.g. knowledge passed between actors, branding)

It is also useful to note whether flows can be categorised as private, club, common-pool or public goods.[8]

It is helpful to visualise the VC process to identify flows, therefore it is expected that this section will be completed in association with the VC diagram template provided in Annex 2 to the T4.3 Guidance.

Please use Table 10 to note flows entering and leaving each stage in the focal VC.

Table 10: Flows entering, within, and leaving the focal VC at each practice stage

Practice stage	Territorial capital entering the VC	Flows that pass to the next practice stage	By-products and externalities that leave the VC

[7] Externalities (e.g. pollination of surrounding crops by bees kept for honey), By-products (e.g. 'draff' residue produced in brewing process, which can be used as livestock feed).

[8] https://quickonomics.com/different-types-of-goods/

For each flow please note in brackets whether they can be categorised as ***private, club, common-pool or public good*** *(see footnote 7)*

Production	Wooded pastures, meadows•Grass and forages•Cows *Wooded pastures are common-pool resources.*	Material: quality milk and raw milk Financial: more CHF paid per litre of milk produced; state supplement for milk processed into cheese;AV in the region = CHF23,87 M Information: traceability	By-products: milk for other cheeses Externalities:multifunctional farming,public subsidies for environmental services
Processing	Buildings and equipment•Cheesemakers, workers, know-how•Technologies and traceability•Quality control•Certification	Material: PDO cheese and other cheese specialties Financial:AVin the regional economy =CHF 19,63 M Information: quality control, traceability and standards (ISO FSSC22000 & IFS in dairies)	By-products: whey,other cheeses and dairy products Externalities: a territorialized production system
Distribution & Marketing	Food products and regional reputation•Selling networks and infrastructures•Organizational structure	Material: PDO cheese sold alone or withGirolle/Fleurolle; “Rosettes”and pre-packaged products Financial:the price of the cheese can vary by a factor of two or even three incertain distant markets;AV in the region = CHF 0,60MAV out of the region = CHF40,43 M Information: quality schemes, traceability, story-telling, media marketing	By-products: other cheeses and dairy products Externalities: reputation
Consumption	Girolle®,Fleurolle®,Rosomat® devices•Creative capital•Image & differentiated quality•Gastronomic and touristic activity	Material: cheese and related culinary devices Financial:increase in value added in the regional economy Information: quality schemes, traceability,story-telling, mediamarketing	By-products:Girolle®,Fleurolle®,Rosomat® device and packaging Externalities: image and reputation

Please use this space to keep track of the sources referred to for this section

Interviews

Annual reports of the Interprofession Tête de Moine AOP

2.3.4. Valorisation and outcomes

The purpose of this section is to consider how value is added by actors within each practice stage – we think of these in terms of economic, socio-cultural, and environmental valorisation, and therefore include, both, market and non-market values.
Please refer to the WP4 methodological guidance (Section 3.3.4) document to see more detail regarding the types of information you may be able to collect in relation to each stage. Please include figures where available.

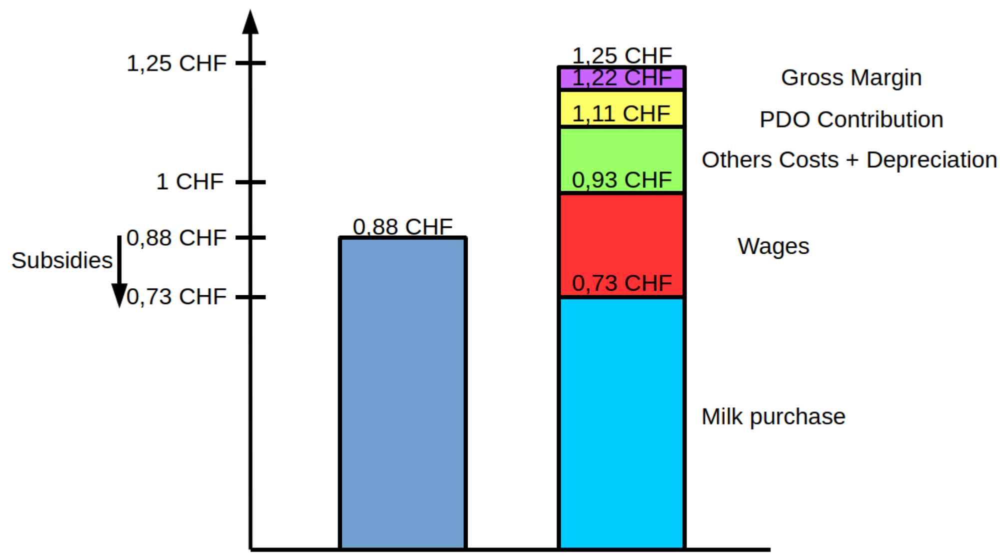
a) Please consider the range of indicators in Table 11 to assess how economic value is accrued in your focal VC

Table 11: Economic valorisation within the focal VC

	Primary Sector	Secondary	Tertiary	Overall (all sectors)
MRL employment rate	8%	43%	49%	-
Is VC employment rate higher or lower than MRL average?	Higher (Jura canton = 6.6%)	Lower (Jura canton = 43,7%)	Lower (Jura canton = 50%)	-
	Production	**Processing**	**Distribution & Marketing**	**Consumption**
VC Employment *Estimated total FTEs employed in MRL VC at each stage (<25 FTE, 25-50; 51-100; >100)*	>100 Based on data from interprofession TdM	>100	<25	N/a
Built capital *What built capital is required for the practices at each stage ? (also note any changes in investment)*	Barnes for animals and fodder/hay. Infrastructure for the storage of equipment, machinery, supplies, and all kinds of materials. Transport equipment.	Dairies. Machines and equipment for dairy sector. Buildings and facilities for reception, analysis, processing, and storage of milk and by-products generated, as well as administration and management. Cellars and ripening machinery (robots). Packaging and storage facilities Transport equipment.	Digital equipment (internet infrastructures). Road haulage and transportation.	Accommodation facilities linked to tourist visits and cultural activities, etc. Cheese shops, vending machines and other retail facilities in supermarkets, local shops, restaurants…

		Energy, water and electrical installations.		
Total Market Values[9] *(note spatial unit of analysis)*	MRL (PDO area)	MRL (PDO area)	Sales in the region	Sales outside the region
Proportion of total Market Value added at each stage (<25%, 25-50% 51-75% >75%)	25-50% (production stage)	<25% (transformation and ripening stage)	<25%	25-50%
Average wage *Please note for each VC stage, plus whether this is above or below the national minimum or living wage*	No data are available for this stage (cf. Livelihood viability)	No data are available for this stage (cf. Livelihood viability)	No data are available for this stage (cf. Livelihood viability)	
Employers *Who are the main actors employing people or investing at each stage ?*	Farmers	Dairies' owners	Owners of distribution and trading companies	Sales managers, owners of shops and retail,
Livelihood viability *Provide a short narrative on whether livelihoods are viable in the MRL at each stage of the VC*	**Production.** The average salary in the region is lower than the Swiss average salary. For the breeders it is important to have an income at least equal to the Swiss minimum wage which is around 4000 CHF. Of course, this is a net salary, without counting expenses and investments and taking into account subsidies. **Processing.** Salaried workers are paid slightly more than the Swiss minimum wage, but the jobs related to cheese making (cheesemaker, seller) are not very attractive, leading to an increasing use of foreign workers. One of the problems limiting the generated value, and becoming increasingly important with time is labour. The workforce possessing skills for processing cheese is becoming increasingly scarce, and therefore more and more expensive and difficult to obtain. The annual wage of a versatile worker in a cheese factory is around 60,000 CHF yearly now. The industry even employs some German or French or Italian workers now, cheaper and sometimes easier to find, attracted by Swiss wages despite the distance. All 8 processors are hiring almost one hundred full-time equivalent, counting processing, selling and management workforce. Of course, this is not the case for the owners of the dairies, the managers or the administrators, who have higher salaries. **Distribution and marketing.** Wages in the distribution sector are on average higher than in the production sector, but we cannot quantify them			

[9] These values may vary a lot depending on the different markets. Please give the range if this is the case.

<table>
<tr><th colspan="5">*The following questions are optional*</th></tr>
<tr><td><u>Net income</u>
Net income of each MRL actor p.a. (or return on turnover, return on investment)
Productivity of MRL FTE labour per hour</td><td colspan="4">Tête de Moine PDO creates added value and the most important income per person before the direct payments. One must nevertheless realise that this high added value contain subsidies in the form of the high prices paid for PDO milk, which contains the 15-18 cents of subsidies per litre paid to the cheese factories by the federal state (and then redistributed to producers).
Looking at the family income, two trends can be seen : extensive systems on small farms are some of the best talking about income per hectare, while the more intensive or diverse estates are good at managing large surface with less workforce and at producing value even with high producing costs.
Comparing this data with industrial milk, the direct competing supply chain to Tête de Moine, the similar zootechnical systems in the two different productions give the advantage to cheese production, by always giving higher income per person (Magnan, 2015).


Added value for one liter of processed milk (Magnan, 2015)</td></tr>
<tr><th></th><th>Production</th><th>Processing</th><th>Distribution & marketing</th><th>Consumption</th></tr>
<tr><td><u>Taxes</u>
What taxes are paid by actors at various stages? (Add amounts if possible)</td><td>Personal income tax</td><td>Value added tax (7.70 % in Switzerland)</td><td>Value added tax (7.70 % in Switzerland)</td><td></td></tr>
<tr><td><u>Grants and subsidies</u>
What subsidies and grants received by actors at various stages? (Add amounts if possible)</td><td>Producers (Direct Payments) in average 30-50% of Total Income

For each liter of milk, producers receive a premium of CHF 0.15 from the Confederation</td><td>No data available</td><td>No subsidies</td><td></td></tr>
</table>

Contribution to GDP *Starting from the National VC value-added contribution to GDP and to balance of trade, what proportion of this national contribution comes from the MRL?* *(<25%, 25-50% 51-75% >75%)*	<25%	<25%	<25%	<25%

Please use this space to keep track of the sources referred to for this section

Interviews

Annual reports of the Interprofession Tête de Moine AOP

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

https://www.jura.ch/CHA/SIC/Le-Jura-aujourd-hui/Economie/Le-Jura-aujourd-hui-Economie.html

b) How do the economic values expressed in Table 11 (above) relate to the averages for the MRR or Member State (benchmarking)? *(See Annex 4 of the Guidance document)*

The Tête de Moine PDO area covers about 70.000 ha, in a harsh climate with long winters (average temperature of 5,5°C VS 9.8°C in Zurich or 11°C in Geneva). Populated by 55.000 inhabitants, this rural region has a low population density (45% of the Swiss average) and also a low per capita income (66% of the Swiss average). Although relatively low, the Jura canton also has a higher unemployment rate than the national average: 4.6% versus 2.1%.

The Swiss GDP by sector is the following: agriculture 0.7%; secondary sector 25.5%; tertiary sector 73.8%.

Primary and dairy sectors in Switzerland

The Swiss farming industry has declined considerably over the last decade. In 1990 agriculture represented 2.2% of the value added created in Switzerland. This figure had fallen to 1.1% by 2000. The main reasons for this downward trajectory are the changing structure of the Swiss economy, which is increasingly geared towards the service sector, and competition from countries with lower agricultural production costs.

The benefits of Swiss agriculture are not purely economic. The agricultural sector uses around half of the surface area of the country and thus contributes to protecting and preserving the landscape. Swiss farmers also produce 55% of the food consumed in Switzerland (2014), thereby helping to safeguard national food security. Federal agricultural policy aims to protect this sector. In 2015 the federal government spent CHF 2.8 billion, or around 4.2% of its budget on direct payments to safeguard the farming industry and the national food supply.

With 2700 tons/year in 2020 Tête de Moine represents 1.1% of Swiss cheese production (203.791 tons in 2020) and 1.8% of Swiss cheese exports (1700 tons/year VS. 72.334 tons). However, it is the 5th most exported Swiss cheese.

Specificities of the Swiss economy

Switzerland has the second highest per capita GDP in the world (USD 86,850 in 2020 based on IMF statistics). Switzerland has the lowest VAT rate in Europe. VAT is payable on most goods and services. A reduced rate of 3.7% is levied on accommodation services, while a 2.5% VAT rate applies to basic necessities and other everyday items.
Switzerland spends over CHF 22.5 billion on research and development (R&D) annually, which equates to around 3% of GDP. The private sector contributes over two-thirds of this amount.

Almost 50% of the population of Jura works in the primary and secondary economic sectors. The sectors of activity represented are: watchmaking, from the manufacture of components to the assembly of watch movements; microtechnology and precision mechanics; medical machines and electronics.The Jura economy is mainly composed of local and international SMEs (ex: Swatch, Fossil, Victorinox, Tag Heure, etc). It's worth noting that the largest shares of exported goods in Switzerland are: chemical and pharmaceutical products (52%), machinery and electronics (13%) and watches (8%). Switzerland is a leading watch exporter with a value of CHF 21.7 billion worldwide.

It is also important to underline that Switzerland has a particular tax regime, different from other European countries. For example, in the last decade the canton of Jura has introduced a new tax status for "New Innovative Companies" (NIC) which favors the company, but also the investor, through a separate taxation. Concretely, the law that came into effect on February 1, 2013, allows each newly created legal entity that develops a new concept (technique, product, process) to apply for NIC status.

The fiscal advantage of this new entity is considerable in the short and medium term, as the company can spread its investment over ten years and benefit from a tax exemption on profits and capital by the same amount. The private investor who injects capital in a company under the NIC status (his own or a third party's) will see his tax bill reduced as long as he invests at least 20.000 CHF/year in the company. The taxation of the income invested in the NIC will be of the order of 2%, the remaining taxable income will be taxed according to the ordinary scale.

<u>Please use this space to keep track of the sources referred to for this section</u>

https://www.agridea.ch/themes/productions-animales/production-laitiere-et-elevage/

https://www.meteosuisse.admin.ch/home/climat/le-climat-suisse-en-detail/normes-climatologiques/normes-par-parametre.html

https://www.eda.admin.ch/aboutswitzerland/en/home/wirtschaft/uebersicht/wirtschaft---fakten-und-zahlen.html

https://agrarbericht.ch/fr/international/statistiques-et-modelisation/comparaisons-internationales

c) Within the MRL, how has the economic capital base changed by the end of the VC? *(Consider whether it has increased, decreased or stayed the same, and provide a short explanation)*

The production of Tête de Moine is a real source of added value for farmers, particularly compared to industrial milk production, and in general largely compensates the additional costs arising from the prohibition of silage, such as investment in a drying barn or the increased dependence on climate due to silage ban. Apart for the varying added value between farms and the effect of subsidies, there seems to have an "added value Tête de Moine" specifically related to the PDO effect. It should also be noted that in our area of study, the litres of milk processed in Tête de Moine are paid on average a penny more than a litre of milk processed in Gruyère PDO and up to 10 cents more than milk processed in local cheese specialities. This gain is justified by a higher selling price of the milk in downstream stage of the supply chain, and participates in the benefits of PDO. It also tend to prove that the PDO protection goes along an increased value generation in the production mail of the chain. It's worth noting that the producers benefit from some of the highest dairy payments of Switzerland, with a price paid per litre varying between 0.75 and 1 franc per litre, depending from quality, collection modalities and involvement in organic production. Added to direct payments, this enables the production to become one of the most profitable agricultural supply chain in the entire region, despite high producing costs. In a nutshell: if some price effects are due to the nature of the cheese product, the nationality of the product or its market segmentation, the protection granted by the PDO has clearly had an influence on this added value, guaranteeing the stabilizing or increasing of price and sales. The actors of the value chain interacted and cooperated, leading a small local cheese throughout history to the birth of an as prosperous production as the Tête de Moine, at the same time competitive on its quasi-monopolistic segmentation and giving remunerative income for its actors. Public authorities heavily supports at the same time the weakest part of the chain (production), ensuring its income and its investment capacity, as well as the central mail of the chain, namely the Interprofession. This stabilizes its prerogatives and ensures the resilience of the sector and its opportunities. These actors are also protected by their interactions with other value chains, coming to stabilize the weaknesses of the PDO. But as underlined before, as the efficiency of this protection is costly (for suing and promoting) and also partially sustained by public authorities, a possible questioning of those subsidies may affect the income of the Interprofession and its efficiency to protect the product.
<u>Please use this space to keep track of the sources referred to for this section</u> Interviews, workshop. Annual reports of the Interprofession Tête de Moine AOP Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

d) Please consider the range of indicators in Table 12 to assess how <u>socio-cultural value</u> is accrued in different stages of your focal VC

Table 12: Socio-cultural valorisation within the focal VC

	Production	Processing	Distribution & Marketing	Consumption
<u>Access to natural resources</u> *How does the VC enable or constrain access*	Grass is the main resource of the region. farmers are the managers of this key resource of these mountain landscapes	The transformation is still done in an artisanal way, without however depriving itself of innovations, the objective is to maintain an irreproachable quality for a product based on raw and excellent milk.	Family farming, respect for the environment and landscapes, know-how, among other natural and cultural resources, are abundantly valued in the marketing of the product.	By buying the product, consumers contribute to the value of the other stages of the value chain
<u>Is the resource system accessible to local entrepreneurs?</u> *- Highly accessible (low entrance costs)* *- Medium* *- Highly inaccessible (high entrance costs)*	Medium	High	High	High
<u>Education/training</u> *Indicate the level generally required at each stage: school leaver, further education, university first degree, master's or above* **Optional: How does this benchmark to national figures for skills/training? – See Annex 4 D39 and D40**	After the end of compulsory schooling, it is possible to follow a federal certificate of capacity ("certificat fédéral de capacité") of 3 years duration. This certificate is the basic training, specializations are possible up to university level	To be a cheesemaker a qualification is necessary. Training is available, but the cheese dairies have some problems in hiring staff. This is due to the presence of other less physical and more attractive jobs that are also probably more remunerative.	University first degree or master	-
<u>Trust/cooperation between actors</u> *(High, Medium, Low)*	High (interprofession)	High (interprofession)	**Medium**	**Low**
<u>Sharing between actors</u> *Information and material (e.g., machinery or labour)* *(High, Medium, Low)*	High	Low	Low	Low
<u>Local participation in decision making</u> *(High, Medium, Low)*	Medium	High	High	Low
<u>Local ownership of the assets and control of the finances</u> *(High, Medium, Low)*	Medium/High	Medium	Medium	

Contribution of VC practices to existing cultural landscapes *(High, Medium, Low)*	Medium	Medium/Low	Low	Low
Contribution of tradition and customs in VC practices *(High, Medium, Low)*	High (traditional practices linked to the specificity of the product)	High (artisanal practices linked to the specificity of the product)	Medium (despite the importance of retail, traditional aspects continue to be valorised as such)	medium (despite the changes in society, the Girolle is still relevant for the consumption of Tête de Moine cheese)l
Contribution of symbolic capital *VC dependence unique, or specific, to the reputation of the area? (High, Medium, Low)*	High	High	High	High
Deprivation *Is MRL area subject to deprivation? (Poverty hotspot)*	Even though the region is one of the least wealthy in Switzerland, it is difficult to say that it is a poor region.			
Gendering *Are occupations/actors in each VC stage : Majority male, majority female, or mixed Please also provide a short description*				
Age profile *Are occupations/actors in each VC stage : Majority <40; majority <60; majority > 60 Please also provide a short description*	*majority <60 (estimation)*	majority <40 *(estimation)*	majority <40 *(estimation)*	majority <60 (?)
Immigration *Do the practices or actors involve : Mostly local people, mixed, mostly immigrants Please also provide a short descriptio,n including – whether immigrants are from different ethnic groups from the dominant local population*	Mostly local people At the farm level, the workforce is essentially family-based. Foreign workers are exceptional.	Mostly local people Foreign workers are beginning to be visible in the dairies. For example, at the Fromagerie du Noirmont we met an Italian in the cheese factory and a Japanese woman in the sales room.	Mixed	Mixed
Occupational hazards	Accidents are related to the use of machinery in the field	Falls on slippery floors, noise and heat pollution,	Transporters of goods encounter risks related to	Raw milk cheeses such as Tête de Moine must be of

Note any key hazards associated with practices at each stage	(tractors, others) or in the barn (loaders). Other risks, such as falls, blows, etc., are also a source of incidents. Farmers are generally insured against these risks and accidents.	electrical shocks, musculoskeletal disorders, skin irritations due to the handling of cleaning and disinfecting chemicals, and respiratory allergies are the major risks incurred by workers in cheese dairies. The possible constraints of night work, complete the overview of risks. Dairies' workers are also insured against these risks and accidents.	accidents on the road or postural disorders. For office staff, the major risk is related to working on a screen for more than 4 hours a day.	the highest quality to ensure the health of consumers. Traceability is guaranteed at every stage of the production process. Every manager of a dairy must implement an HACCP (Hazard Analysis Critical Control Point) approach in order to guarantee food safety.
Physical and mental health *Note how practices at each stage might lead to increased or decreased physical and mental health outcomes* *Also note whether there are overall positive health outcomes, mixed health outcomes, negative health outcomes*	There are breeders who face psychological difficulties, usually associated with business failures (bankruptcy, inability to generate income, etc.). These cases are exceptional in the Tête de Moine PDO value chain.	Harassment and disrespect towards colleagues are possible, although rare.	Harassment and disrespect towards colleagues are possible, although rare.	-
Human-enviromental impacts *Note whether practices at any/each stage has an effect on potable water, food safety/nutrition, zoonotic pests, and diseases, and air quality* *Also note whether the effect is positive, mixed, or negative*	The non-respect of hygiene rules can be the cause of food poisoning crises. Milk handlers, containers and materials in contact with milk are sources of infection (salmonella, staphylococcus, campylobacter, listeria ...) contaminating milk and some raw dairy products (cheese) with germs pathogenic to humans. Daily contact with	The non-respect of hygiene rules can be the cause of food poisoning crises. Milk handlers, containers and materials in contact with milk are sources of infection (salmonella, staphylococcus, campylobacter, listeria ...) contaminating milk and some raw dairy products (cheese) with germs pathogenic to humans.	The non-respect of hygiene rules can be the cause of food poisoning crises. Milk handlers, containers and materials in contact with milk are sources of infection (salmonella, staphylococcus, campylobacter, listeria ...) contaminating milk and some raw dairy products (cheese) with germs	The non-respect of hygiene rules can be the cause of food poisoning crises. Milk handlers, containers and materials in contact with milk are sources of infection (salmonella, staphylococcus, campylobacter, listeria ...) contaminating milk and some raw dairy products (cheese) with germs pathogenic to humans.

	animals can promote the transmission of zoonotic diseases. Breeders are trained to know the chain of transmission (reservoir, exit door,...) and to implement the most appropriate prevention. To do this, they must be able to assess the risk of contamination by analyzing their workstations: - identify the activities (calving, etc...) and the equipment (calving machine..) - take into account the mode of transmission (respiratory, etc...) - assess time and frequency of exposure - identify the situations most at risk.	The dairy industry uses a lot of water for the operation of the boilers (pasteurization and sterilization operations) and the cleaning of the installations: the dairy effluents are composed of whey and washing water, containing the various detergents and disinfectants used as well as milk residues. Whey has a much greater environmental impact because it has a very high organic load (particularly phosphorus concentrations). Dairy effluents therefore constitute a pollution risk for surface or ground water when they are discharged without proper treatment into the natural environment. The management of quality and the traceability are constantly monitored by the operators and accidents are extremely rare.	pathogenic to humans.	

<u>Please use this space to keep track of the sources referred to for this section</u>

Interviews, workshop, participant observation.

https://www.agri-job.ch/fr/formation-initiale/professions-agricoles/agriculteur-trice.html

https://www.fao.org/fao-who-codexalimentarius/home/en/

e) **How do the socio-cultural values expressed in Table 12 (above) relate to the averages for the MRR or Member State (benchmarking)?** *(See Annex 4 of the Guidance document)*

There are no significant differences from other national or European mountain areas in many of the aspects analyzed. For example, the application of the HACCP protocol is generalized throughout the European Union and even beyond (Codex Alimentarius). Similarly, the specifications of the PDO are very strict and all tha value chain operators ensure that all food safety and health regulations at national or international level are respected. This is a necessary condition for the export of the products.
<u>Please use this space to keep track of the sources referred to for this section</u> https://www.fao.org/fao-who-codexalimentarius/home/en/

f) **Within the MRL, how has the socio-cultural capital base changed by the end of the VC?** *(Consider whether it has increased, decreased or stayed the same, and provide a short explanation)*

The socio-cultural capital base has undoubtedly increased. There are multiple agents and institutions that mobilise the cultural capital of the local territory, in processes of singularisation similar to those carried out by the quality labels of these foods (PDOs or regional brands). But these processes go beyond the local productive territory. They mobilise actors at different levels (national and even international) and aim to attach consumers to these products through lived experiences and staged actions (Jeannerat, 2013). These are social processes of valuation and cross-learning in which we are basically witnessing the production of meanings.
<u>Please use this space to keep track of the sources referred to for this section</u> Interviews, workshop. Jeannerat, H. (2013), Staging experience, valuing authenticity: Towards a market perspective on territorial development, *Regional Studies* Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

g) **Please consider the range of indicators in Table 13 to assess how <u>environmental value</u> is accrued in different stages of your focal VC**

Table 13: Environmental valorisation within the focal VC

	Production	Processing	Distribution & Marketing	Consumption
Natural resource inputs *Consider the resources used at inputs at each VC stage (e.g. water - quantity and quality, soil fertility, air quality, rocks and minerals, wild flora, and fauna)*	Water Land Grass	Water	-	-
Locality of natural resource inputs *Proportion of natural resources local to the MRL (<25%, 25-50% 51-75% >75%)*	>75%	>75%	-	-
Sustainability of resource use *Is the MRL natural resource based being used at a sustainable rate within each stage?*	**Yes**	**-**	**-**	**-**
Farmed resources *Consider the resources used at each VC stage (e.g. arable crops, forestry, livestock)*	Arable crops Livestock	-	-	-
Locality of farmed resource inputs *Proportion of farmed resources local to the MRL (<25%, 25-50% 51-75% >75%)*	<75%	-	-	-
Competition *Is there competition for these natural and farmed resources from other VCs? (provide details)*	It may be related in competition with the production of industrial milk, meat or milk for other specialties (eg Gruyere, since it shares the geographical area of production)	-	-	-
Pollution, erosion, and waste *Note whether practices at any/each stage has an effect on soil erosion and pollution, air pollution,*	-	-	Transport over long distances (air, land) can generate high rates of carbon emissions and pollution.	Transport over long distances (air, land) can generate high rates of carbon emissions and pollution.

water pollution, waste that cannot be or is not reused				
<u>Biodiversity and habitat quality</u> *Consider whether practices at any/each stage has negative, positive or mixed outcomes for biodiversity and/or habitat quality in the MRL?*	the over-specialized use of the land for the production of Tête de Moine, can limit biodiversity at some point (grass and fodder). Nevertheless, farmers are pushed by public authorities and advisor services to set up infrastructures and habitats for natural predators (perches for raptors, dry stone walls for ermines, etc.)			
<u>GHG emmissions</u> *Consider the contribution that practices at each stage* *(Contribute to GHG emissions, GHG neutral, sequesters GHGs)*			Transport over long distances (air, land) can generate high rates of carbon emissions and pollution.	Transport over long distances (air, land) can generate high rates of carbon emissions and pollution.
<u>Please use this space to keep track of the sources referred to for this section</u>				

h) **How do the environmental values expressed in Table 13 (above) relate to the averages for the MRR or Member State (benchmarking)?** *(See Annex D of the Guidance document)*

No data available
<u>Please use this space to keep track of the sources referred to for this section</u>

i) **Within the MRL, how has the environmental capital base changed by the end of the VC?** *(Consider whether it has increased, decreased or stayed the same, and provide a short explanation)*

The Tête de Moine PDO value chain respects higher requirements than the industry standards in terms of sustainability, including mandatory grazing of livestock, the use of predominantly on-farm fodder (at least 70% of the total feed), the maintenance of a family agriculture on a human scale and the use of new renewable energies. Some farms are innovating and equipping themselves with thermovoltaic barn dryers, with hot air generators, or with methanization coupling. Over the last twenty years, the specifications for Tête de Moine PDO have evolved and been adapted in the areas of the feeding of dairy cattle, the general conditions of production, the production on the

farm, the "taxation" (quality control), the use of Tête de Moine as an ingredient and the labelling. This reinforcement of quality, sustainability and traceability has resulted in an even better positioning of Tête de Moine on the market. If the production will increase, some actors are already starting to think about increasing the proportion of grass in the cows' ration, for example from 70% to 80%. These reflections show a constant search for the highest quality, to differentiate the product and maintain it in a profitable market segment.
Nevertheless, wooded pastures, whose socio-cultural and ecological functions are widely recognized, including by scientists, could be better valued and receive more attention from local actors. In this sense, the integrated management plans ("plans de gestion intégrée") should be better supported and monitored more closely.

Wooded pastures (© Canton of Jura)

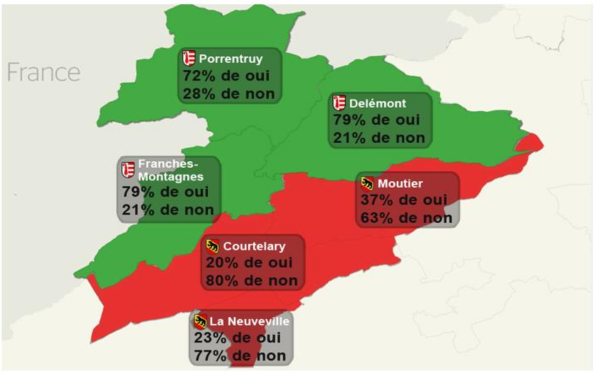
Please use this space to keep track of the sources referred to for this section

Interviews, workshop.

j) What are the economic, socio-cultural, and environmental outcomes sought for your focal VC?

The formal protection of the geographical origin of products by obtaining a PDO should clearly constitute a form of enhancement of **cultural values**. We have been able to observe the structuring effects of protection: it encourages local actors, who used to act in a more individualistic way, to work together on the characterization of a product and its methods of production, but also its promotion. Producers who were not aware of each other had to work together around a common project.

This was far from self-evident, if we think that the canton of Jura is the most recent in Switzerland. It is important to remember that, in the inter-war period, demographic decline and economic difficulties fuelled the feeling that "Jura interests" were being ignored by Bern, while a local elite felt the need to assert their identity, based on language and history. This led to the separation of the Jura region from Bern, implemented partially as three of seven districts formed the republic and canton of Jura in 1979, while the remaining four opted to remain with Bern. We must be aware of that when we know that the TdM production area extends beyond the canton of Jura and includes producers in the Bernese Jura.



Referendum on the creation of a new common canton between Jura (green) and Bernese Jura (red)
(Ref: RTS.ch - 26 novembre 2013)

The 9 dairies in the production zone. The white line is the legal frontier between Jura and Bernese Jura.
(Ref: Interprofession Tête de Moine PDO)

Cultural values: the construction of the PDO and the valorisation of the product goes beyond political boundaries

In this sense, the PDO is literally a boundary object as it is the outcome of a *collective* agreement on the technical specifications of the cheese, but also between multiple actors with strong differences in terms of cultural and linguistic belonging. The “cahier des charges” (product specifications) is the cornerstone of the construction of the PDO : it’s a socio-technical device that enables a multitude of heterogeneous entities to 'hold together'. The word: “collective” here is not limited to the human actors. It must integrate also non humans, like animals or other living entities like bacteria, cows or grass in our case. This also applies to material artifacts and infrastructures, not only from a technological point of view but because the living world can adapt in unexpected ways to the introduction of new devices. That’s clearly what the Girolle showed to us, in a positive manner. This also applies to immaterial and symbolic resources. But to say that the Tete de Moine is a cultural good, that its success is based on the integration of a symbolic value, is not enough. It is also necessary to understand in which way the economic value of the product is co-constructed, communicated and legitimized within a market embedded in different spaces.

Please use this space to keep track of the sources referred to for this section

Interviews.

Annual reports of the interprofession Tête de Moine

k) Are these outcomes sought by local VC actors within the MRL or a wider set of actors? *(e.g. national society, all consumers)*

The valorisation of Tête de Moine and other PDOs (like Gruyère) is the outcome of a territorialized process of collective action that has been capable to link external resources to multi-local innovation dynamics. Through co-construction, collective learning, the constitution of multiple actor-networks and various forms of partnership action, the valuation process of Tête de Moine cheese explores ways to find trans-sectoral and trans-scalar rather than merely technological solutions. However, the Tête de Moine case is unique. On one hand it's a PDO which is a bottom-up approach based on a territorialized collective organization; on the other, it's based on the Girolle, a device related to the demands of multiple users, from producers to consumers. Hence, innovation here is not based on predetermined solutions. According to Jeannerat et Crevoisier (2016) we acknowledge that territorial dynamics of innovation are not only dynamics of economic valuation. They are also part of a process of social valuation where specific solutions to emerging problems are built, at different institutional scales, in response to global challenges.
<u>Please use this space to keep track of the sources referred to for this section</u> Interviews, workshop. Participant observation. Annual reports of the interprofession Tête de Moine. Jeannerat, H., Crevoisier, O. (2016) Editorial: From 'Territorial Innovation Models' to 'Territorial Knowledge Dynamics': On the Learning Value of a New Concept in Regional Studies. *Regional Studies* 50, issue 2, 185-188 Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

3. Conducive Enabling Environment (Step 5)

This step involves analysis of the 'conducive enabling environment', which sets the conditions for the practices involved, and the rules/norms used by actors in the value chains. This includes aspects of governance and institutions that **<u>support, but are not part of, the focal VC</u>.**
Please complete tables for each practice stage of the VC; bear in mind that <u>the same information (e.g., policies) may be included in tables for different stages</u>, but interpretated based on the perspective of actors at each stage of the VC.

a) Please reflect on different elements of the conducive enabling environment supporting pratices and actors at the <u>production stage</u> of the VC in Table 14.

Table 14: Conducive enabling environment relevant to the production stage of the focal VC

Infrastructure	*Scale*

		(MRL, MRR, national, EU/international)
What physical infrastructure (including transport & energy) is available for practices at the production stage of the VC?	- Farms and milk production sites	- MRL
	- Dairies and transformation centers	- MRR
	-	-
What digital infrastructure is available for practices at the production stage of the VC ?	- Internet connection	- MRR, national
	- Robots and digitalisation of the cellars	- MRR, national
	-	-
Please note any key aspects relating to infrastructure in that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	The value chain benefits from the specialization of the Swiss and Jura industrial sector in precision machinery, for example by acquiring automated machines for maturing in the cellars.	
	Strategies and vision	***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific strategic plans or documents support actors and practices at the production stage of the focal VC?		-
	- Production plan and annual sales projection (Interprofession TdM)	- MRR/Nationa & International
	- Marketing plan and brand disclosure (interprofession TdM / Switzerland Cheese Marketing)	- National/International
	- "Lait Jura 2030" (vision promoted by the Chambre d'Agriculture of Jura vision promoted in order to revitalize the sector, considering the constant decrease in the number of producers (for example: in the Tête de Moine value chain, from 270 in 2015 to 248 in 2021)	- MRR
What territorial strategies or visions (e.g. green recovery) have a direct relationship on function and performance at the production stage of the focal VC?	- Production strategies (research) based on durability and long-term sustainability in the Swiss agricultural sector.	- National
	- Promotion of transformation to BIO production	- National
	- Regional branding and other territorial valorisation approaches (such Natural Parks)	- National, MRR

	- Promotion of the Jura Region (Jura Tourism)	- MRR
Please note any key aspects of these strategies and visions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	Most of these strategies are still in their infancy and lack coherence and global integration, partly due to the "silo" logic that has prevailed until now.	
Projects and programmes		***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific projects or programmes support actors and practices at the production stage of the focal VC ?	- Integrated management plans ("plans de gestion intégrée" - managed at the municipal level)	- MRL, MRR
	- Créalait project (Créalait project aims to develop the processing of dairy products in the canton of Jura with the objective to supply a larger part of the population with local products. Private investors, farmers and agricultural companies will develop milk production, milk processing, logistics and sales outlets for dairy products. The farmers involved will benefit from a higher remuneration per liter of milk processed in the canton into new or traditional products. This regional development project, which will cost a total of CHF 11.4 million, will be supported by the canton of Jura and the federal government).	- MRL, MRR, National
What other territorial projects or programmes have a direct influence on the function and performance at the production stage of the focal VC ?	- Natural Parks (Doubs, Chasseral)	- MRL, MRR
	- Swiss agricultural policy	- National
	- Politique pour les espaces ruraux et les régions de montagne (PERM)	- National
Please note any key aspects of these projects and programmes that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	In the Franches Montagnes district, 82% of the grassland is wooded pasture (Republique et Canton of Jura, 2018). This landscape is linked to cultural and ecological values and it's widely recognized by inhabitants and tourists. Nevertheless, this characteristic landscape is under threat. The quality of the woodland can be judged first of all by its ability to rejuvenate itself in the long term. This ability is undermined in lightly wooded pastures, where the ageing of the afforestation is more marked than in other types of wooded pastures. The mortality of old trees and the absence of young generations to replace them gradually lead to the disappearance of the afforestation. This more or less rapid decrease in afforestation is generally observed in the immediate proximity of farms, where the operating conditions are conducive to an intensification of grassland production (Apolloni et al, 2017). In these productive pastures, intended primarily for dairy cows, the grazing pressure and the techniques for maintaining the grassland area make natural rejuvenation	

	almost impossible. natural rejuvenation. The renewal of the trees must therefore be ensured by means of plantations, first of all on the existing stumps, which must then be protected (Buttler et al, 2012). These measures are difficult to implement because of their high cost, the loss of grassland and the maintenance work required. In the more heavily forested pastures, the opposite phenomenon is observed. The afforestation expands and becomes denser due to the effect of overgrowth and the dynamics of natural rejuvenation. The densification of wooded landscapes affects the most remote areas of the pasture, which are less favorable to pastoral exploitation to pastoral exploitation (heifer pasture). The pressure of livestock is no longer sufficient to counteract the extension of the forest vegetation. Only consequent clearing measures, combined with wood cutting and and the confinement of livestock to the reclaimed areas, can prevent the return to forest. to prevent the return to the forest. The phenomenon of bipolarization thus unfolds in the wooded pasture according to the gradient of its agricultural attractiveness and is accentuated under the effect of hazards (drought, storms) that accelerate the mortality of of old trees (Republique et Canton of Jura, 2018).	
Regulatory		***Scale*** *(MRL, MRR, national, EU/international)*
What key legal and 'soft law' requirements do VC practices at the production stage have to comply with? *(Think about health and safety, climate and environmental standards, licencing, employment law, taxation, property rights, legal contracts, etc)*	- Swiss agricultural policy	- National
	- Swiss and European regulations on PDOs/PGIs (quality schemes) *(see diagrams)*	- National, internationa l
	- Projets de développement régional (PDR)	- MRR, national
	-	-
	-	-
Please note any key aspects of these regulatory institutions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	The link between natural resources and farming practices is regulated by the agricultural policy, which evolved into a stronger emphasis on environmental aspects and ecosystemic services of agriculture. So there are nowadays subsidies associated with the quality of the landscape provided to the farmer for its maintenance, as well as to support biodiversity and production systems with high ecological value. The agricultural production subsidies changed also from a partial coupling between the livestock units and the surface to a total coupling to the hectare. All these guidelines have for consequence to reorient the support to the most extensive systems and the ones with the most important surfaces. The systems in the area have then mostly benefited of this reform. But as the subsidies are coupled to surface, the important size of Franches-Montagnes exploitation compared to the Swiss average create a land rent. As a consequence, the already biggest farms are the most able ones to buy new land, and to obtain more subsidies. This is threatening for our region and the PDO, as this concentration of land and production units may marginalize small farms and	

	reduce the number of producers, weakening the production in our PDO area and creating the opposite effect of the harmonisation of farm size observed till today.	
	Cooperation	***Scale*** *(MRL, MRR, national, EU/international)*
What formal collective action institutions exist that support the production stage of the VC? (Note, this does not include actors that are directly involved in the focal VC (included in actors section))	- Swiss and European regulations on PDOs/PGIs (quality schemes)	- National, international
	-	-
	-	-
Please note any key aspects of these collective action institutions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes		
	Finance	***Scale*** *(MRL, MRR, national, EU/international)*
How are practices at the production stage of the VC financed?	- Own funds, credit application	- MRL, MRR
Is access to capital and revenue a problem for actors at the production stage of the VC? (If yes, please specify how)	- Certain levies decided by the interprofessional organization on the price of milk are not always unanimously accepted or understood. For example, the levy to finance promotional campaigns was reduced this year.	- MRL
Is the production stage of the VC associated with any 'new' private sector investment ? (Think about payment for eco-system services, carbon credits, etc)	- There are multiple agri-environmental subsidies, mandatory compliance with environmental conditions, and the organic market is growing. Several cheese dairies apply environmental certifications, which lead them, for example, to cover roofs with photovoltaic cells to reduce their carbon footprint.	- MRL, MRR, National
What public subsidies or incentives are available to support actors and practices at the production stage of the VC?	The national agricultural policy introduced the "Prestation écologiques recquises" (Ecological performance requirements). These are listed in the OPD - "Ordonnance sur les paiements directs"- (swiss law) and include: - 1. livestock husbandry in accordance with animal protection regulation (art. 12 OPD)	- National

	- 2. a balanced manure plan (art. 13 OPD) - 3. Soil analyses (Art. 13 OPD) - 4. an appropriate share of areas dedicated to the promotion of biodiversity (art. 14 OPD) - 5. the use of objects listed in inventories of national importance in accordance with the regulations (art. 15 OPD) - 6. regular rotation of land (art. 16 OPD) - 7. appropriate soil protection (Art. 17 DPO) - 8. selection and targeted use of plant protection products (art. 18 OPD) - 9. requirements for seeds and planting material (art. 19 OPD) - 10. requirements for special crops (art. 20 OPD) - 11. requirements for buffer strips (art. 21 OPD)	
	-	-
	-	-
What taxes or other levies are relevant to practices at the production stage of the VC?	- Personal Income Tax (farmers)	- National
	- Corporate income Tax (dairies, retailers and traders)	- National
	- VAT	- National
What other fiscal charges (interest rates, exchange rates) impact on the production stage of the VC?	-	-
	-	-
	-	-
In what ways does the land market and price of land impact on the production stage of the VC?	- As the subsidies are coupled to surface, the important size of Franches-Montagnes exploitation compared to the Swiss average create a land rent. As a consequence, the already biggest farms are the most able ones to buy new land, and to obtain more subsidies. This is threatening for our region and the PDO, as this concentration of land and production unit may marginalize small farms and reduce the number of producers, weakening the production in our PDO area and creating the opposite effect of the harmonisation of farm size observed till today.	- MRL, MRR, National
Please note any key aspects of these financial institutions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Certification processes		***Scale*** *(MRL, MRR, national, EU/international)*

What regional and/or quality assurance processes are relevant to the production stage of the VC? (Include, PDO, PGI, etc.)	- PDO (Product with Denomination of Origin)	- MRL/MRR/ National/International
	-	-
	-	-
What other certification processes are relevant to the production stage of the VC?	- Other brands like “marque Parc”, “Regiogarantie”	- MRL, MRR
	- Organic certification	- National
Please note any key aspects of these certification institutions that are important to understanding the production stage of the VC; it’s role in the VC process; and how it contributes to generating outcomes	Authentic regional products have a common national look: the Swiss Association for Regional Products launched in 2015 the regio.guarantee label to distinguish tested and certified regional products. Products that are certified according to the national guidelines for regional brands can carry the new label in combination with the respective regional brand. Following the implementation of the national guidelines for regional brands on 1.1.2015 and the subsequent establishment of the Swiss Association for Regional Products, the launch of the regio.guarantee label represents a further important step in this collaboration in the field of regional products. The same principle applies to products with "park brand". For a product to be labelled, it is necessary that : - that the raw material comes from the Regional Park (Parc du Doubs or Parc du Chasseral), - that the processing steps are carried out on its territory, - that the producer commits to fulfilling three sustainable development measures in a predefined catalog (including becoming a member of the Regional Park). The labeling of a Regional Park product is organized jointly with the regional brands (Doubs, Jura and Jura bernois)	
Knowledge, advice and skills *Note informal knowledge sharing between VC actors is included in SC valorisation*		***Scale*** *(MRL, MRR, national, EU/international)*
What specific training and skills provision is available for practices at the production stage of the VC?	- knowledge of the local flora and fauna - know-how related to animal husbandry (detailed knowledge of each animal and its needs, technical knowledge related to infrastructure management, knowledge related to administrative practices), - knowledge related to landscape management (planting and management of trees, maintenance of grasslands and forage areas, management of associated infrastructure) - knowledge of sanitary rules and safety measures concerning people and products	- MRL
	- Fondation Rurale Interjurassienne	- MRR

What knowledge advisors are available to support practices at the production stage of the VC?	- -			- -
Please note any key aspects of these certification institutions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- The most important institutions involved in certification are: the Tête de Moine interprofession, which accompanies and coordinates the links in the value chain; and the Intercantonal Certification Office ("Office Intercantonal de Certification"), which is responsible for verifying compliance with the specifications (third-party certification).			
Market structure				***Scale***
	Practice[10]	***Market structure[11]***	***Power relations[12]***	*(MRL, MRR, national, EU/international)*
How would you describe the market structure and power relations within it for each practice at the production stage of the VC process? *(Please use the typologies outlined in footnotes)*	Delivery of milk to the cheese dairy	Oligopsony (238 producers selling milk to 8 dairies)	Medium symmetry as potential conflicts are managed by the interprofession	- MRL
Please note any key aspects relating to market structure institutions that are important to understanding the production stage of the VC; it's role in the VC process; and how it contributes to generating outcomes				-

<u>Please use this space to keep track of the sources referred to for this table</u>

Apolloni, N., M. Lanz, S. Birrer & R. Spaar (2017) Intensification des pâturages maigres et des pâturages boisés dans la chaîne jurassienne. *Station ornithologique suisse*, Sempach.

Buttler et al (2012) Conservation des pâturages boisés du Jura: défis climatiques et agro-politiques, *Recherche Agronomique Suisse* 3 (7–8): 346–353

République et Canton du Jura, *Politique cantonale des pâturages boisés*, Février 2018, http://www.jura.ch/paturages-boises

https://www.jura.ch/CHA/SIC/Centre-medias/Communiques-2020/Crealait-un-projet-pour-developper-et-valoriser-le-lait-et-les-produits-laitiers-transformes-du-canton-du-Jura.html

10 This refers to different practices within the production stage (identified in Table 1)

11 Please use the following typology: perfect competition; monopoly – one seller; oligopology – few sellers; monopsony – one buyer; oliogopsony – few buyers; other – describe.

12 Please describe in terms of: symmetrical or aysymetrical – including high, medium or low asymmetry

https://regiosuisse.ch/fr/politique-espaces-ruraux-regions-montagne

https://www.rfj.ch/rfj/Actualite/Region/20220201-Reflexion-lancee-sur-le-projet-Lait-Jura-2030.html

Le Guerroué JL, Barjolle D, Piccin L, (2022) What roles does research play in the development of a geographical indication? The specific case of the Gruyère PDO in Switzerland. *Economie Rurale*, 379/Janvier-mars 2022, 63-83.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

b) Please reflect on different elements of the conducive enabling environment supporting practices and actors at the <u>processing stage</u> of the VC in table 15.

Table 15: Conducive enabling environment relevant to the processing stage of the focal VC

Infrastructure		*Scale* *(MRL, MRR, national, EU/international)*
What physical infrastructure (including transport & energy) is available for practices at the processing stage of the VC?	- Production room (salting, pressing and molding of cheeses) - Washing room. The most used room. The cheesemakers spend half (!) of their time washing the dishes. - Packaging room. - Ripening cellars. - Water and electricity pipes, white water and waste water drains, cooling units, water heater, tanks, stainless steel tables, shelves, all other tools....	- MRL - -
What digital infrastructure is available for practices at the processing stage of the VC ?	- Automated aging machines - Computers for remote control of automated machines - Financial accounting (computers and softwares)	- MRL - -
Please note any key aspects relating to infrastructure in that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- Hygiene regulations and rules on food safety have profoundly transformed the production structures, but the collective process that led to the PDO has made it possible to evolve without undermining local know-how and resources, especially raw milk. For example, all parts of the cheese dairies are washable and are cleaned after each use.	
Strategies and vision		***Scale*** *(MRL, MRR, national, EU/international)*

What sectoral or VC-specific strategic plans or documents support actors and practices at the processing stage of the focal VC?	- Code of practices ("cahier des charges")	- MRL
What territorial strategies or visions (e.g. green recovery) have a direct relationship on function and performance at the processing stage of the focal VC?	- Code of practices and collective agreements at level of the interprofession	- MRL
Please note any key aspects of these strategies and visions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Projects and programmes		***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific projects or programmes support actors and practices at the processing stage of the focal VC?	- Code of practices and collective agreements at level of the interprofession	- MRL
	-	-
	-	-
What other territorial projects or programmes have a direct influence on the function and performance at the processing stage of the focal VC ?	- Regional nature parks as they can support marketing and selling of regional products. Regional nature parks promote tourism - more direct sales and added value in the regions. This is linked to structures like Maison de la Tête de Moine or Fromagerie du Noirmont, that organize on-site visits.	- MRL
	-	-
	-	-
Please note any key aspects of these projects and programmes that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes		
Regulatory		***Scale***

		(MRL, MRR, national, EU/international)
What key legal and 'soft law' requirements do VC pratices at the production stage have to comply with? (Think about health and safety, climate and environmental standards, licencing, employment law, taxation, property rights, legal contracts, etc)	- National and international regulations (Swiss and EU regulations on quality schemes, Swiss and international regulations - Codex Alimentarius - on food safety) - - - -	- MRL, National, EU/International - - - -
Please note any key aspects of these regulatory institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Cooperation		***Scale*** *(MRL, MRR, national, EU/international)*
What formal collective action institutions exist that support the processing stage of the VC? (Note, this does not include actors that are directly involved in the focal VC (included in actors section))	- Interprofession is the umbrella organization for all the actors of the value chain - -	- MRL - -
Please note any key aspects of these collective action institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes		
Finance		***Scale*** *(MRL, MRR, national, EU/international)*

How are practices at the processing stage of the VC financed ?	-	
Is access to capital and revenue a problem for actors at the processing stage of the VC? (If yes, please specify how)	- A distinction must be made between family farmers and big players such as the MIBA cooperative and the EMMI group. The majority of farmers have few financial possibilities, hence they often need public support. In the case of MIBA and EMMI it is different because these structures have links with the downstream parts of the value chain (retail, consumers) and also own shares and stocks and other sources of financing (real estate investments), which can be mobilized in the value chain (i.e. purchase and renewal of the fromagerie du Noirmont by MIBA in 2016)	- MRL, MRR, national
Is the processing stage of the VC associated with any 'new' private sector investment ? (Think about payment for eco-system services, carbon credits, etc)	-	-
	-	-
	-	-
What public subsidies or incentives are available to support actors and practices at the processing stage of the VC?	- The Créalait project, financed by local and national public authorities, encourages producers to switch from industrial milk to cheese milk. The project started in 2021 and can, for example, finance targeted investments such as the installation of a barn dryer to encourage the use of local fodder. Even if this project targets production, it will indirectly impact the processing stage since the objective is to process and valorize a greater quantity of milk in the territory.	- MRL, MRR, National
What taxes or other levies are relevant to practices at the processing stage of the VC?	- Corporate income Tax (dairies, retailers and traders	- National
	- VAT	- National
	-	-
What other fiscal charges (interest rates, exchange rates) impact on the processing stage of the VC?	- No data available	-
	-	-
	-	-
In what ways does the land market and price of land impact on the processing stage of the VC?	-	
Please note any key aspects of these financial institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	

Certification processes		***Scale*** *(MRL, MRR, national, EU/international)*
What regional and/or quality assurance processes are relevant to the processing stage of the VC? *(Include, PDO, PGI, etc.)*	- PDO	- MRL
	- Quality schemes	- National - EU
	-	-
What other certification processes are relevant to the processing stage of the VC?	- Quality standards certifications at dairies' level (ISO 9001, FSC 22000, ISO 14001)	- MRL, MRR, National, internationa l
	-	-
	-	-
Please note any key aspects of these certification institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Knowledge, advice and skills *Note informal knowledge sharing between VC actors is included in SC valorisation*		***Scale*** *(MRL, MRR, national, EU/international)*
What specific training and skills provision is available for practices at the processing stage of the VC?	- The cheesemaker is a bit of a magician at heart, he transforms milk, a liquid material, into a pleasant solid to be savored in many forms and flavors! Milk is not a raw material like any other, that's why being a cheesemaker is above all a know-how requiring multiple skills, intuition but also a perfect knowledge of milk. Indeed, he must anticipate the differences and variability of milk, linked to the seasons, in order to ensure the same level of quality to the product and this all year long. These skills and know-how can be learned, but experience is key and so cheesemaking is often a family business, inherited from one generation to the other.	- MRL
What knowledge advisors are available to support practices at the processing stage of the VC?	- Fondation Rurale Interjurassienne	- MRR
	- FROMARTE (the umbrella association of Swiss cheese craftsmen. Its primary goal is to strengthen the structures of the crafts. FROMARTE works to achieve optimal framework conditions for its members and represents their interests at the political level and in the market.	- National

	FROMARTE is committed to maintaining the uniqueness and diversity of Swiss cheese)			
	-			-
Please note any key aspects of these certification institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-			
Market structure				***Scale*** *(MRL, MRR, national, EU/international)*
	Practice[13]	***Market structure***[14]	***Power relations***[15]	
How would you describe the market structure and power relations within it for each practice at the processing stage of the VC process? (Please use the typologies outlined in footnotes)	Selling cheese	Oligopoly	Low asymmetry as there are few distributors but the interprofession can negotiate agreements with them (see below)	- MRL, MRR, national, EU/international
				-
				-
Please note any key aspects relating to market structure institutions that are important to understanding the processing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	The size of the processing units is variable. Indeed, a small organic cheese factory is producing 2 tons of cheese annually, and should be compared to the industrial scale of the biggest industrial plant, producing nearly 1.000 tons of Tête de Moine. Their small number makes the discussion, exchanges and coordination of prices between stakeholders easier, but it also has a few drawbacks. When differences of sizes and structure are so important between units, it also tends to accentuate the power balance in favour of big factories. And indeed, the two largest facilities gathers the vast majority of the cheese for the ripening, and are the two only official ripeners, being then the bottleneck of the supply chain. In an industry where every processor knows and monitors the others, and where the introduction of competition between them by the downstream distribution is a			-

[13] This refers to different practices within the processing stage (identified in Table 1)

[14] Please use the following typology : perfect competition; monopoly – one seller; oligopology – few sellers; monopsony – one buyer; oliogopsony – few buyers; other – describe.

[15] Please describe in terms of: symmetrical or aysymetrical – including high, medium or low asymmetry

	gateway to the personalization of conflict, the importance of a PDO structure to be a single final voice for production and processing and to be responsible for the volume allocation key seems essential to prevent worsening of the balance of power. In that small group of processors, each modernization project, expansion or fusion is indeed a source of tension, and the Interprofession soothes them. It's important to note that once the cheese is ready, there is the problem of the storage of cheese during these at least 2,5 months of maturation. This requires very large structures, and therefore significant investments. There is only a few dairies that refine their entire production, and most of them instead sell their cheeses or rent a cellar in one of the two biggest facilities of the supply chain, which have significant cellar surface and are ripening the majority of cheeses. More than the half of the production is then matured at Saignelégier, the largest site in size, and belonging to the Emmi Group, one of the leading groups of the Swiss dairy industry. The final product sold to the ripener is about 3 weeks and is sold around 14.5 CHF/kg. After being refined, packaged and ready to go on in distribution, its price is about 16 CHF/kg price.	
Please use this space to keep track of the sources referred to for this table Interviews Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich. Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont https://www.fromarte.ch/fr/		

c) Please reflect on different elements of the conducive enabling environment supporting practices and actors at the distribution & marketing stage of the VC in Table 16.

Table 16: Conducive enabling environment relevant to the distribution & marketing stage of the focal VC

	Infrastructure	*Scale* *(MRL, MRR, national, EU/international)*
	- Dairies & Farms (packaging, marketing strategies)	- MRL

What physical infrastructure (including transport & energy) is available for practices at the distribution & marketing stage of the VC?	- Vending machines	- MRL
	- Distribution centers	- National / International
	- Transport companies (land and air)	- National / International
What digital infrastructure is available for practices at the production stage of the VC ?	- Internet connection (Social media management, website)	- National / International
	- Technologies for traceability and product information management	- National / International
	-	-
Please note any key aspects relating to infrastructure in that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	The distribution and export part is handled mainly by the two refineries, from the cheese maturation process, packaging, distribution and sale, the transportation process is handled mainly with the company. The marketing part is divided between the Interprofession and the entire logistics system of Switzerland Cheese Marketing.	
	Strategies and vision	***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific strategic plans or documents support actors and practices at the distribution & marketing stage of the focal VC?	- Promotion and marketing strategy developed for Swiss cheese specialties: Switzerland Cheese Marketing	- National / International
	- Cahier des Charges "Tête de Moine"	- *MRL, MRR*
	- International regulations for the conservation and transport of food (mainly for exported products)	- National / International
What territorial strategies or visions (e.g. green recovery)	- Promotion in the change and use of renewable energies (electric cars, reduction of pollution and carbon footprint)	- National

have a direct relationship on function and performance at the distribution & marketing stage of the focal VC?	- Tourist promotion of the Jura region, bringing the consumer closer to the process of knowing the product and generating distribution and direct contact with the product	- MRL, MRR, National
	- Regional events: Feast of the Tete de Moine, open days at farms and dairies	- MRL, MRR
Please note any key aspects of these strategies and visions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- The promotion of the use of renewable energies is directly related to reducing pollution in the production, transformation and distribution process. - Events such as the Tête de Moine Festival not only promote the product, but also meeting spaces between the actors in the value chain, marketing activities and knowledge about the product and its particular quality, tourist activities, tastings, competitions around the product.	
Projects and programmes		***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific projects or programmes support actors and practices at the distribution & marketing stage of the focal VC ?	- Promotion and marketing strategy developed for Swiss cheese specialties: Switzerland Cheese Marketing	- National /International
	- Sales, expansion and promotion program generated each year by Interprofession, where they seek to expand the market mainly internationally.	- International
	- Search for diversification and association of "Tête de Moine" with other products, in order to expand the market and marketing strategy to reach new audiences.	- MRL
What other territorial projects or programmes have a direct influence on the function and performance at the distribution & marketing stage of the focal VC ?	- Tourist promotion of the Jura region	- MRR
	-	-
	-	-
Please note any key aspects of these projects and programmes that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Regulatory		***Scale*** *(MRL, MRR, national,*

		EU/international)
What key legal and 'soft law' requirements do VC practices at the distribution & marketing stage have to comply with? (Think about health and safety, climate and environmental standards, licencing, employment law, taxation, property rights, legal contracts, etc)	- PDO (Property Rights): Use of the name "Tête de Moine"	- National /International
	- Cahier des Charges (quality/labelling requirements)	- National /International
	- Certification Body (OIC: Organisme Intercantonal de Certification, SCES No 0054)	- National
	- Swiss International Trade Policies (Taxes)	- National / International
	- Swiss National Food Labeling and Handling Regulations	- National
Please note any key aspects of these regulatory institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
	Cooperation	***Scale*** *(MRL, MRR, national, EU/international)*
What formal collective action institutions exist that support the distribution & marketing stage of the VC? (Note, this does not include actors that are directly involved in the focal VC (included in actors section))	- Swiss cheese marketing	- National , International
	- AOP/IGP Suisse	- National , International
	- Swiss Federal Institute of Intellectual Property (IPI)	- National , International
Please note any key aspects of these collective action institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it	These are fundamental actors in the valorisation and protection of the PDO. They work together with governmental agencies, trade associations and businesses to enforce Swiss indications of source within Switzerland and internationally. For example, the Swiss IPI is the federal government's central point of contact for all questions concerning patents, trade marks, geographical designations of origin, design protection and copyright. It is responsible for drafting legislation and advising the Federal Council and other federal authorities on matters concerning intellectual	

contributes to generating outcomes	property. The IPI also represents the interests of Switzerland at international level. Its legal mandate is regulated in more detail on an ongoing basis by the political instances and in particular the head of the Federal Department of Justice and Police. The Swiss PDO-PGI Association supports a targeted implementation of the concerns regarding the PDO and PGI in the political context. This also involves efforts to build an efficient protection system against imitations and misuse of the geographic indications. Through specific communication and publicity measures the Swiss PDO-PGI Association wants to inform the Swiss consumers about the protected designations of origin (PDO) and protected geographical indications (PGI). On demand, the interested organizations, schools and institutions will be supplied with promotion and information material. Moreover, the association arranges joint trade show attendance and carries out further marketing activities in the PR field. Media people are, in addition, informed about current events through press releases. Furthermore, the Association represents the joint interests of the associations in the PDO and PGI context.	
	Finance	***Scale*** *(MRL, MRR, national, EU/international)*
How are practices at the distribution & marketing stage of the VC financed ?	- Swiss cheese marketing and AOP/IGP can help for the promotion and the communication campaigns - The interprofession applies levies on the price of milk to finance promotional campaigns	- National MRL
Is access to capital and revenue a problem for actors at the distribution & marketing stage of the VC? (If yes, please specify how)	- There may be a problem related to the return times of the money, especially in extensive supply chains (Exports).	- National /International
Is the distribution & marketing stage of the VC acssociated with any 'new' private sector investment ? (Think about payment for eco-system services, carbon credits, etc)	- Direct payments and support programs from the Swiss government: There are various payment programs from the government focused on caring for the region's own landscape, protection of fauna and flora, preservation of the landscape, use of renewable energies, organic production... Many of them applicable in the cheese value chain "Tete de Moine".	- National
	-	-
	-	-
What public subsidies or incentives are available to support actors and practices at the distribution & marketing stage of the VC?	- Federal state support	- National
	-	-
	-	-
What taxes or other levies are relevant to practices at	- Corporate income tax	- National
	- The interprofession applies levies on the price of milk to finance promotional campaigns	- MRL

the distribution & marketing stage of the VC?	- Export duties	- International
What other fiscal charges (interest rates, exchange rates) impact on the distribution & marketing stage of the VC?	- In the last decade the canton of Jura has introduced a new tax status for "New Innovative Companies" (NIC) which favors the company, but also the investor, through a separate taxation. Concretely, the law that came into effect on February 1, 2013, allows each newly created legal entity that develops a new concept (technique, product, process) to apply for NIC status. The fiscal advantage of this new entity is considerable in the short and medium term, as the company can spread its investment over ten years and benefit from a tax exemption on profits and capital by the same amount. The private investor who injects capital in a company under the NIC status (his own or a third party's) will see his tax bill reduced as long as he invests at least 20.000 CHF/year in the company. The taxation of the income invested in the NIC will be of the order of 2%, the remaining taxable income will be taxed according to the ordinary scale.	- MRL, MRR
In what ways does the land market and price of land impact on the distribution & marketing stage of the VC?	-	
Please note any key aspects of these financial institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
	Certification processes	***Scale*** *(MRL, MRR, national, EU/international)*
What regional and/or quality assurance processes are relevant to the distribution & marketing stage of the VC? (Include, PDO, PGI, etc.)	- PDO (Cahier des charges): use of the name "Tête de Moine", labelling, Traceability mark)  	- National / International

What other certification processes are relevant to the distribution & marketing stage of the VC?	- BIO (Organic Product)	- National /International
	- Regional Labels : Jura, Parc du Doubs, Chasseral	- MRR/ National
	-	-
Please note any key aspects of these certification institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- The Denomination of Origin certification is one of the most important tools in the marketing, communication strategy and promotion of "Tête de Moine" cheese, promoting all the values as a traditional product of special quality from the mountain. - The BIO certification is internationally recognized, in addition to giving an added value in the average price per kg of cheese, in terms of marketing, it is a characteristic that is increasingly exploited to boost its sale and particular quality. - Regional brands are a widely used strategy for the national market, since that is where they are recognized by the consumer, promoting the value of regional, traditional and high-quality products.	
Knowledge, advice and skills *Note informal knowledge sharing between VC actors is included in SC valorisation*		***Scale***

					(MRL, MRR, national, EU/international)
What specific training and skills provision is available for practices at the distribution & marketing stage of the VC?	- Communication and Marketing management/ strategies				- National /International
	- FRIJ (Fondation Rurale Interjurassienne): Technical support, courses and research				- MRL/ MRR
	-				-
What knowledge advisors are available to support practices at the distribution & marketing stage of the VC?	- Sales agents, brokers				- National / International
	- Switzerland Cheese Marketing organization: National strategy for the promotion at different levels of Swiss specialty cheeses.				-
	-				-
Please note any key aspects of these certification institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-				
Market structure					***Scale*** (MRL, MRR, national, EU/international)
	Practice[16]	***Market structure***[17]		***Power relations***[18]	
How would you describe the market structure and power relations within it for each practice at the production stage of the VC process? (Please use the typologies outlined in footnotes)	Direct selling on dairies or farms	Oligopoly	There are only two producers of "Tête de Moine" with the certification of "production fermiere"		- MRL
	Export on national&inter	Oligopoly	The sale and export of "Tête de Moine"		- National /

[16] This refers to different practices within the distribution & marketing stage (identified in Table 1)

[17] Please use the following typology : perfect competition; monopoly – one seller; oligopology – few sellers; monopsony – one buyer; oliogopsony – few buyers; other – describe.

[18] Please describe in terms of: symmetrical or aysymetrical – including high, medium or low asymmetry

	nationalmarket s		PDO is mainly controlled by the 2 refiners, in turn there are re-sale and re-export processes by its largest clients such as Coop, Migros, Lidl, however the process is handled by a few actors, in relation to the number of producers.		Internati onal
	Communicatio n &promotion campaigns	Oligopoly	Mainly managed by two actors: Switzerland Cheese Marketing and Interprofessio n "Tête de Moine"		- National / Internati onal
	Public Administration	Monopoly	Government		National
	International trade agreements	Oligopoly-Monopoly	Government and also related to the few actors involved in the export of the product		- National / Internati onal
	Packaging & Certifications	Oligopoly-Monopoly	Associated with the two refiners, who are the ones who carry out the packing process corresponding to the Cahier des charges, also with the Interprofessio n in relation to the control bodies to keep		- National / Internati onal

			the certifications.		
Please note any key aspects relating to market structure institutions that are important to understanding the distribution & marketing stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-				-

Please use this space to keep track of the sources referred to for this table

https://www.j3l.ch/en/P89141/produits-du-parc-et-labels

https://www.parcdoubs.ch/

https://www.tetedemoine.ch/en/products

https://www.tetedemoine.ch/images/tete-de-moine/PDF/Cahier-des-charges/211111_Tete_de_Moine_Specification_EN_non-certifie.pdf

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

d) Please reflect on different elements of the conducive enabling environment supporting practices and actors at the consumption stage of the VC in Table 17.

Table 17: Conducive enabling environment relevant to the consumption stage of the focal VC

	Infrastructure	*Scale (MRL, MRR, national, EU/international)*
What physical infrastructure is available for practices at the consumption stage of the VC?	- Road & airports network (International, national, regional, provincial, local)	- National/ International
	- Restaurants, events	- National/ International
	- Supermarkets, Specialty Stores	- National/ International
What digital infrastructure is available for practices at the consumption stage of the VC ?	- Online shops and online sales	- MRL/MRR/ National / International
	- Informative material for the consumer: videos, pairing samples, decoration and consumption ideas with "Tête de Moine" cheese through official social networks	- National/ International

	-	-
Please note any key aspects relating to infrastructure in that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- In the consumption process of "Tete de Moine" the use of La Girolle is always associated, therefore it is an important factor to take into account, possibly it will be present in all the facilities and infrastructures destined for consumption.	
Strategies and vision		***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific strategic plans or documents support actors and practices at the consumption stage of the focal VC?	- Sale of Rosettes ready for consumption (avoids the purchase of the Girolle and facilitates consumption for the customer)	- National/ International
	- Strategic sale with other products (Mix for fondue, rosettes with charcuterie....), expanding the forms of consumption of "tete de moine"	- National/ International
	- Package that includes "Tête de Moine" + "Fleurolle" cheese (Device similar to Girolle, but made in plastic and at a lower cost), making the product accessible to all budgets.	- National/ International
What territorial strategies or visions (e.g., green recovery) have a direct relationship on function and performance at the consumption stage of the focal VC?	- Promotion of consumption of local products produced in the Jura Region and regional parks	- MRL, MRR
	-	-
	-	-
Please note any key aspects of these strategies and visions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
Projects and programmes		***Scale*** *(MRL, MRR, national, EU/international)*
What sectoral or VC-specific projects or programmes support actors and practices at the consumption stage of the focal VC ?	- Promotion of consumption of local products produced in the Jura Region and regional parks	- MRL, MRR
	-	-
	-	-

What other territorial projects or programmes have a direct influence on the function and performance at the consumption stage of the focal VC ?	-	-
	-	-
	-	-
Please note any key aspects of these projects and programmes that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-	
	Regulatory	***Scale*** *(MRL, MRR, national, EU/international)*
What key legal and 'soft law' requirements do VC practices at the consumption stage have to comply with? *(Think about health and safety, climate and environmental standards, licencing, employment law, taxation, property rights, legal contracts, etc)*	- Global Food Safety Initiative (IFS): Important initially for exports	- International
	- European Food Safety Authority (EFSA): Important for exports and marketing within the European Union	- International
	- FSVO: Federal Food Safety and Veterinary Office	- National
	-	-
	-	-
Please note any key aspects of these regulatory institutions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- At a regulatory level in the consumption process, regulations at the food safety and health level must be taken into account according to the region of consumption, since these may vary	
	Cooperation	***Scale*** *(MRL, MRR, national, EU/international)*
What formal collective action institutions exist that support the consumption stage of the VC? (Note, this does not include actors that are directly involved	- Switzerland Cheese Marketing: promotion strategies	- National/International
	- Fondation Rurale Interjurassienne: rural extension and training	- MRR

in the focal VC (included in actors section))	-	-
Please note any key aspects of these collective action institutions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes		
	Finance	***Scale*** *(MRL, MRR, national, EU/international)*
How are practices at the consumption stage of the VC financed?	- Sales mainly abroad (Exports) - Taxes on consumption and derivatives of international trading	National/International
Is access to capital and revenue a problem for actors at the consumption stage of the VC? (If yes, please specify how)	- There may be a problem related to the return times of the money, especially in extensive supply chains (Exports)	
Is the consumption stage of the VC acssociated with any 'new' private sector investment ? (Think about payment for eco-system services, carbon credits, etc)	- - -	- - -
What public subsidies or incentives are available to support actors and practices at the production stage of the VC?	- - -	- - -
What taxes or other levies are relevant to practices at the consumption stage of the VC?	- Taxes on consumption - -	- National/International - -
What other fiscal charges (interest rates, exchange rates) impact on the consumption stage of the VC?	- - -	- - -
In what ways does the land market and price of land impact on the consumption stage of the VC?	-	
Please note any key aspects of these financial institutions that are important to understanding the consumption stage of the VC; it's role in the VC process;	-	

and how it contributes to generating outcomes		
	Certification processes	***Scale*** *(MRL, MRR, national, EU/international)*
What regional and/or quality assurance processes are relevant to the consumption stage of the VC? (Include, PDO, PGI, etc.)	- Guarantee of special and particular quality, derived from the designation of origin	- National/International
	-	-
	-	-
What other certification processes are relevant to the consumption stage of the VC?	- Other quality certifications such as organic production, regional brands, etc.	- National/ International
	-	-
	-	-
Please note any key aspects of these certification institutions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	- The certifications associated with the particular quality of the product, its ingredients and know-how, generate additional value that is well valued mainly in its largest market: abroad.	
	Knowledge, advice and skills *Note informal knowledge sharing between VC actors is included in SC valorisation*	***Scale*** *(MRL, MRR, national, EU/international)*
What specific training and skills provision is available for practices at the consumption stage of the VC?	- Courses and training in Sensory Analysis	- National
	- Contests (At the Tete de Moine Festival): the cheeses produced under the PDO "Tête de Moine" are classified, giving scores according to the sensory analysis (physical appearance, flavor quality...)	- National
	- International fairs and samples: Judges compare and rank the different cheeses according to some categories, award prizes and distinctions. Fancy Food Show (New York) Paris International Agricultural Show	- International
What knowledge advisors are available to support practices at the consumption stage of the VC?	- FRIJ	- National
	-	-
	-	-
Please note any key aspects of these certification institutions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it	-	

contributes to generating outcomes				
	Market structure			***Scale*** *(MRL, MRR, national, EU/international)*
	***Practice*[19]**	***Market structure*[20]**	***Power relations*[21]**	
How would you describe the market structure and power relations within it for each consumption at the production stage of the VC process? (Please use the typologies outlined in footnotes)	Domestic Consumption	Oligopoly	Asymmetrical	- National
	Non Domestic Consumption		Asymmetrical	- International
	Communication			-
	Culinary and Cultural Experiences			
	Emotional Consumption			
Please note any key aspects relating to market structure institutions that are important to understanding the consumption stage of the VC; it's role in the VC process; and how it contributes to generating outcomes	-			-
<u>Please use this space to keep track of the sources referred to for this table</u>				

e) Finally, please comment on the overall governance system for the MRL. *Consider hierarchy, markets, networks, and communities. What does this governance style tell us about the current structure of the VC and how it is generating outcomes? What, if any, are the territorial governance conflicts that effect the VC?*

The establishment and governance of the PDO has affected the added value and its repartition in the Tête de Moine supply chain. But we must underline that the PDO, as a protection and promotion tool,

[19] This refers to different practices within the consumption stage (identified in Table 1)

[20] Please use the following typology : perfect competition; monopoly – one seller; oligopology – few sellers; monopsony – one buyer; oliogopsony – few buyers; other – describe.

[21] Please describe in terms of: symmetrical or aysymetrical – including high, medium or low asymmetry

is more the final point of a dynamic begun with the Girolle, and acts much more as a stabilizing crutch for the already lucrative and prosperous supply chain. It justifies the collective decisions taken, and through the volume and quality regulation, helped protect the price of the product, and to repel counterfeits after the Girolle's patent's end.
If it is impossible to know what would have been the fate of the product without the PDO, a look upon the evolution of the other production is very enlightening. The other strongly supervised production, the PDO Gruyère, knew a similar resilience through crisis. Other PDOs, differently managed, as the Emmenthaler, and non PDO cheese present in the region, faced higher drops in prices trough crisis. And the industrial milk lives a dark time since 2008. This shows clearly the importance of the PDO protection in the resilience of the Swiss dairy products.

<u>Please use this space to keep track of the sources referred to for this section</u>

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

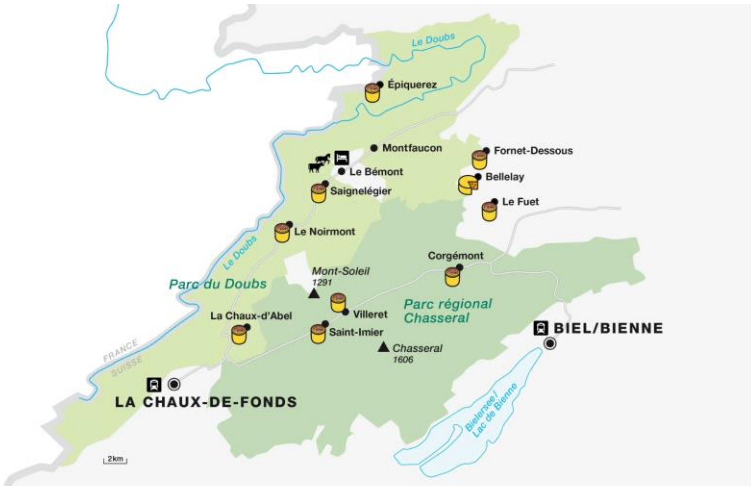
4. Spatial Analysis and Telecoupling (Step 6)

a) Please name the units of analysis in Table 18, including how they relate to EC nomenclature.

Table 18: Spatial units of analysis

<table>
<tr>
<td><u>MRL</u></td>
<td>

- The production area of Tête de Moine PDO cross the cantons of Jura and Bernese Jura (“Jura Bernois”), equivalent to NUTS-3 CH025 (Jura), and CH021 (Berne).



Localisation of the dairies across the two cantons and two natural parks (Parc Régional du Doubs - north, Jura - and Parc Régional du Chasseral - south, mostly Bernese Jura -)
</td>
</tr>
</table>

	These are the municipalities which enter in the area: - Epiquerez 2885 - Bellelay 2712 - Le Fuet 2712 - Fornet-Dessous 2717 - Corgémont 2720 - Saint- Imier 2610 - Villeret 2420 - Le Noirmont 2340 - La Chaux d'Abel 2615 - Saignelégier 2350 - Le Bémont 2360 - Montfaucon 2362
MRR	- **Swiss Jura, RR14** In agreement with WP3 leaders we chose to not use the EU GIS deliminations for this but the new definition of Swiss mountain regions by the Swiss federal office for statistics (2019), where the Swiss Jura is referred to as RR14.
Nation or Member State	- Switzerland
International (global or EU)	- Europe/ Global
Please use this space to keep track of the sources referred to for this section	

b) **For each practice stage, please note the proportion[22] of practices taking place in each of the four spatial units in Table 19.** *You may also want to consider each practice stage in terms of the EU rural -urban typology[23]*

Table 19: Proportion of Practices in space

	Production	**Processing**	**Distribution & Marketing**	**Consumption**
MRL	>75%	>75%	<25%	<25%
MRR	0%	0%	25-50%	<25%
Nation/ Member State	0%	0%	25-50%	25-50%
International	0%	0%	51-75%	51-75%
Optional: Rural-urban typology	Rural	Rural	Urban	Urban
Please use this space to keep track of the sources referred to for this section				

c) **For each practice stage, please note the proportion[24] of actors involved in each of the spatial units in Table 20.** *You may also want to consider each actor type stage in terms of the EU rural -urban typology[25]*

Table 20: Proportion of VC actors in space

Spatial unit / Actor type	MRL	MRR	Nation	International	*Optional: Rural-urban typology*
LUS manager	>75%	<25%	0	0	Predominately rural
NGO	<25%	<25 %	<25%	0	Predominately rural

22 <25%, 25-50% 51-75% >75%

23 Predominatley urban, intermediate, predominately rural (see Section 3.5 of the Methodological Guidelines for WP4 document for more information)

24 <25%, 25-50%, 51-75%, >75%

25 Predominatley urban, intermediate, predominately rural (see Section 3.5 of the Methodological Guidelines for WP4 document for more information)

Civil society	<25%	<25%	<25%	0	Predominately rural
Broker/advisor.	25-50%	<25%	<25%	0	Intermediate
Business (agri)	>75%	51-75%	<25%	0	Predominately rural
Business (non-agri)	>75%	<25%	<25%	<25%	Intermediate
Public sector	51-75%	<25%	<25%	<25%	Intermediate
Research	51-75%	<25%	<25%	<25%	Intermediate
Other					
Please use this space to keep track of the sources referred to for this section Interviews; estimations					

d) In the space below, please consider where different consumers markets for your focal VC are based. *If dealing with a global VC, note the main ports associated with the import/export and the main export markets.*

The distribution between TdM consumers is based on different parts, following this composition: 30% of Self-consumption (Swiss market). 70% of Exportations: Germany, France, Spain
Please use this space to keep track of the sources referred to for this section Annual reports of the interprofession Tête de Moine.

e) For each practice stage, please note the proportion[26] of the economic (Table 21), socio-cultural (Table 22), and environmental (Table 23) values/outcomes[27] accrued across each of the spatial units.

[26] <25%, 25-50%, 51-75%, >75%

[27] Identified in Section 3.3.4

Table 21: Proportion of economic values/outcomes accrued in different spatial units

	Production	Processing	Distribution & Marketing	Consumption
MRL	25-50%	25-50%	<25%	<25%
MRR	25-50%	25-50%	51-75%	<25%
Nation/ Member State	-	-	<25%	<25%
International	-	-	<25%	>75%
Optional: Rural-urban typology	Rural	Urban	Urban	Urban
Please use this space to keep track of the sources referred to for this section				

Table 22: Proportion of socio-cultural values/outcomes accrued in different spatial units

	Production	Processing	Distribution & Marketing	Consumption
MRL				
MRR				
Nation/ Member State	50-75 % or more depending on the markets	50-75 % According to references and steps on the Cahier des charges	<25-50 %	Rural sector/ area involved
International	-	-	<25%	
Optional: Rural-urban typology				
Please use this space to keep track of the sources referred to for this section				

Table 23: Proportion of environmental values/outcomes accrued in different spatial units

	Production	Processing	Distribution & Marketing	Consumption
MRL	No data available	No data available	No data available	No data available
MRR	No data available	No data available	No data available	No data available
Nation/ Member State	No data available	No data available	No data available	No data available
International	No data available	No data available	No data available	No data available
Optional: Rural-urban typology				
Please use this space to keep track of the sources referred to for this section				

f) **In the space below, please consider if tele-coupling in your focal VC involves flows entering or leaving the MRL.** *Please also consider spill-over flows (a node in a network between sender and receiver) and note where the other socio-ecological systems are located.*

Indeed, there is a high percentage of production destined for international markets, the entire flow between processors and distributors moves outside the MRLs, most of its added value is exported or packaged in rosettes, mix with another kind of products (Fondue mix, mix with cured meat) or Package including the girolle or Fleurolle. The machine is in fact promoted and sold beyond the borders. This has also allowed to develop the sale of prepackaged rosettes.
<u>Please use this space to keep track of the sources referred to for this section</u> Interviews, participant observation.

5. Interactions with other VCs (Assemblage) (Step 7)

a) **In the space below, please note 1-2 additional VCs that have important interactions with your focal VC and why have they been selected:**

Additional VC1 **Gruyère PDO** The Gruyère PDO value chain has been selected because : - the production zone overlaps with Tête de Moine PDO (see figure below) ; - the two value chains have in common several actors and territorial resources;

The production zone of Gruyère PDO (https://www.gruyere.com/le-gruyere-aop/la-protection-aop)

Please use this space to keep track of the sources referred to for this section

Interviews

b) **What are the final product(s) associated with the additional VCs you have selected?** *Think about the different value propositions associated with the product and also include information about different categories of the final product (for example, premium or discount varieties)*

- *Gruyère AOP* - Rather young, 6 to 9 months ripened
- *Gruyère AOP Reserve* - It owes its intense aroma to its maturation period of over 10 months. Its taste is full-bodied and fruity and it has a firm and slightly crumbly texture.
- *Gruyère AOP Bio (organic)* - The "Bio" designation is given only to wheels of cheese from farms that produce milk meeting the requirements of the "Bio Suisse" label. Its taste varies according to the maturing process.
- *Gruyère AOP Alpage* - it is produced from mid-May to mid-October on the mountain pastures. It owes its fine and typical taste to the great variety of pastures and alpine flora, as well as to the first quality raw milk of the cows. Its taste varies according to its age. Le Gruyère d'Alpage PDO is only pressed in cloth. Its wheel is slightly smaller, about 25 kg. In the early autumn, the mountain farmers and their cows return to the plain. This descent from the mountain pasture is called the "désalpe" and is celebrated collectively.

Please use this space to keep track of the sources referred to for this section https://www.gruyere.com/le-gruyere-aop/nos-varietes

c) **How long have these additional VCs existed in the MRL?**

Additional VC1 The origin of Gruyère cheese dates back to the 12th century and its reputation has grown over the centuries. It is the fruit of a long tradition of breeders and cheesemakers, and its typicality comes from the land ("terroir"), both in its physical dimension of the rich pastures and mountain pastures of the Pre-Alps and Jura, and in the know-how of the breeders and cheese makers.
Please use this space to keep track of the sources referred to for this section https://www.gruyere.com/le-gruyere-aop/lhistoire

d) **Please note all the relevant practices at each stage of your additional VC(s) using the Table 24.**

Table 24: Practices involved in additional VC(s)

Practice type	Additional VC	List of practices
Production *Think about all the practices involved in production of commodities on which the final product(s) are based.*	VC1 : Gruyère PDO	- Milking (everyday) - Transportation and delivery process (No more than 18 hours after milking) - Organization and planning of production according to the guidelines of the Interprofession Gruyère (Quantities of milk and production seasons) - Purchase of supplies (Fertilizers, animal feed) - Management of soil (fertilizing, crop planning and rotation). - Adaptation of the area for the stay of the animals and the milking process. - Organizing and maintenance of machinery.
Processing	VC1 : Gruyère PDO	- Quality control of raw material (Dairies) - Heating (30º-32º C).

Think about all the activities which involve <u>transformation of commodities</u> into the final product(s).		- Addition of lactic cultures and rennet. - Cut of cheese grains (separation of the lactoserum) - Molding and identification. - Pessing and Turn (first 24 hours) - Height: 9.5 to 12 cm; Diameter: 55 to 65 cm; Weight: 25 to 40 kg - Brine bath (12º C - 20º C) - Cellars (RH 92%, 12ºC – 18°C) - Ripening at least 5 months - Regular brushing with water and salt. - Monitoring of maturation and quality during aging process. - Packing, storage and delivery.
<u>Distribution and Marketing</u> *Think about practices relevant to <u>how the product is provided to the consumer.</u>*	VC1 : Gruyère PDO	- Promotion activities in domestic and international market - International trade administrative processes - Transport of merchandise to the different distributors (exportations or national distributors) - Certifications and quality control
<u>Consumption</u> *Think about practices relevant to <u>consumption of the end product</u>(s).*	VC1 : Gruyère PDO	- Domestic consumption (46%) - International consumption (34%) - Events (tasting and demonstration of the products)
<u>Please use this space to keep track of the sources referred to for this section</u> Official specifications ("cahier des charges") of the Gruyère PDO Annual reports of the interprofession Gruyère		

e) **In the space below, please consider whether the same practices generate the assemblage, or does the assemblage require adaptation from original practices in the focal VC?**

The Gruyère PDO value chain, although it occupies a less symbolic and central place in the cheese production of the region studied, is a complementary production to the Tête de Moine. The Tête de Moine production area is included in the larger Gruyère PDO production area. Indeed, Gruyère is produced with summer and spring milk, which does not lend itself well to Tête de Moine, a "winter cheese" that is not very mature (2.5 to 4 months vs. at least 5 months for Gruyère). Thus, Gruyère PDO is a very complementary production to the Tête de Moine, with selling prices close to those of the Tête de Moine, a similar if slightly stricter specification, and a maturing period that is compatible with the production of summer milk. Thus, even the only Tête de Moine cheese dairy that does not produce any other cheese regulates its spring and summer milk volumes through volume exchanges with the only cheese dairy in our study area that is not involved in Tête de Moine production, but only in Gruyère, thus allowing the cheese to be matured for a longer period.
This allows these two structures to smooth out their cash flow and their treatment of cheese volumes while maintaining their producers and their production capacity at the fall/winter peak.

<u>Please use this space to keep track of the sources referred to for this section</u>

Interviews.

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

f) **Please highlight the territorial capitals enrolled in each stage of your additional VC(s) using Table 25:**

Table 25: Territorial capitals involved in additional VC(s)

Practice type	Additional VC	Economic capital	Socio-cultural capital	Environmental capital
<u>Production</u> *Think about all the practices involved in <u>production of commodities</u> on which the final product(s) are based.*	VC1 : Gruyère PDO	- Barnes; Barn dryers; Infrastructures; Machinery; - Inputs; - Management and Certification; - Milk production	- Maintenance of emblematic landscapes (alps, wooden pastures) - Transmission of tangible and intangible cultural heritage linked to local know-how	- Landscape management; - respectful breeding of animals, Haymaking and grass & fodder management (manuring, crop rotation) - Reduced impact on water and soil resources

Processing *Think about all the activities which involve transformation of commodities into the final product(s).*	VC1 : Gruyère PDO	- Buildings, infrastructures and equipment; - cheesemakers and workers, - know-how; - technologies and traceability; - quality control; - certifications	- Transmission of tangible and intangible cultural heritage linked to local know-how	- reduced greenhouse gas emissions (farm to dairy distance < 10 km)
Distribution and Marketing *Think about practices relevant to how the product is provided to the consumer.*	VC1 : Gruyère PDO	- Food products - Sales networks and infrastructures - Organizational structure	- Identity and regional reputation	- Landscape and associated imagineries
Consumption *Think about practices relevant to consumption of the end product(s).*	VC1 : Gruyère PDO	- Image & differentiated quality; - gastronomic and touristic activities (landscape, nature, history & tradition, mountains); - local knowledge & skills	- Image & differentiated quality; - gastronomic and touristic activities (landscape, nature, history & tradition, mountains); - local knowledge & skills	- Image & differentiated quality; - gastronomic and touristic activities (landscape, nature, history & tradition, mountains); - local knowledge & skills
Please use this space to keep track of the sources referred to for this section Annual reports of the interprofession Gruyère PDO https://www.blw.admin.ch/blw/fr/home/instrumente/direktzahlungen/oekologischer-leistungsnachweis.html				

g) **What common territorial capitals are involved in the assemblage between the focal and additional VCs?**

VC1 : Gruyère PDO

Tête de Moine and Gruyère are based on the same natural resources: grass and fodder from the PDO area (minimum 70%). The specifications are essentially the same at this level (production), which allows producers and cheesemakers to agree on the type of milk to be delivered according to annual

market trends. For example, if the demand for Tête de Moine is strong, the milk producers in the area will deliver milk to produce this type of cheese. On the contrary, if difficulties arise, the cheesemakers can use the milk to produce Gruyère cheese. The latter has the advantage of being able to be stored for longer periods. Again, the two cheeses are complementary.
Please use this space to keep track of the sources referred to for this section Interviews, participant observation.

h) **Please note all the actors involved in your addtional VC(s) using Table 26.**

Table 26: Actors in additional VC(s)

Actor type	Additional VC	List of actors
LUS manager	Gruyère PDO	Public administrations; agricultural offices; landowners; farmers
NGO	Gruyère PDO	Breeders' and cheesemakers associations
Civil society	Gruyère PDO	PDO/PGI Swiss association
Broker/advisor	Gruyère PDO	Fondation Rurale Interjurassienne, Chambre d'Agriculture
Business (agri)	Gruyère PDO	1800 milk producers; interprofession Gruyère PDO; 57 "alpages" (alpine pastures)
Business (non-agri)	Gruyère PDO	154 dairies ;11 refiners; cheesemakers and dairies' workers; input and service providers; sales managers in festivals, local or distance markets; distributors in the local, national, international and online markets; Swiss Cheese Marketing ; quality certifiers (i.e. Office Intercantonal de Certification for PDOs); input and service providers
Public sector	Gruyère PDO	OFAG (federal office for agriculture), Minister of Agriculture, Minister of economy and trade, Municipal and cantonal authorities

Research	Gruyère PDO	National and international property rights institutions, Agroscope, Agridea, ETH Zürich, Universities, …
Other	Gruyère PDO	Food ambassadors; celebrity chefs; consumers

Please use this space to keep track of the sources referred to for this section

Annual reports of the interprofession Gruyère PDO

Le Guerroué JL, Barjolle D, Piccin L, (2022) What roles does research play in the development of a geographical indication? The specific case of the Gruyère PDO in Switzerland. *Economie Rurale*, 379/Janvier-mars 2022, 63-83.

i) **In the space below, please consider whether assemblage with additional VCs involves new actors not involved in the focal VC?**

As explained above, the assembly goes mainly through cheese dairies. In particular, a cheese factory that only produces Gruyère regularly exchanges milk with the only cheese dairy that only produces Tête de Moine.
But the assembly is also linked to the collective construction of the PDO, since the procedures, the organizational innovations (interprofession, quality groups, etc.) and the actors at the state level are the same for both value chains. For example, the Swiss PDO/PGI association and Swiss Cheese Marketing help the interprofessions in their promotion efforts and can coordinate their actions.

Please use this space to keep track of the sources referred to for this section

Interviews.

j) **In Table 27, please consider the flows that move between your focal VC and additional VC(s).** *In each appropriate cell provide a short narrative indicating the direction of flows*[28] *and any other relevant information*

Table 27: Flows between VCs

	Focal VC: Tête de Moine	Additional VC: Gruyère PDO
Flows – materials	Milk (bi-directional)	Milk (bi-directional)
Flows – information	Milk prices and market trends monitored and communicated by centralized	Milk prices and market trends monitored and communicated by

[28] From FVC to AVC; From AVC to FVC; Bi-directional

	structures like interprofessions (bi-directional)	centralized structures like interprofessions (bi-directional)
Flows - finance	One dairy can buy two types of milks from a same producers in the MRL (Tête de Moine PDO production zone) (From FVC to AVC)	One dairy can buy two types of milks from a same producers in the MRL (Tête de Moine PDO production zone) (From FVC to AVC)
By-products		
Externalities	Collective landscape management and organization of events and festivals attract tourists (bi directional)	Collective landscape management and organization of events and festivals attract tourists (bi directional)
Please use this space to keep track of the sources referred to for this section Experts opinions.		

k) **In Table 28, please consider whether (and how) the assemblage influences outcomes in the focal VC.**

Table 28: Affect of assemblage on focal VC outcomes

	Economic	Socio-Cultural	Environmental
Amplifies +ve	Revenues of farmers, cheesemakers and other operators of the value chain	Higher revenues enhance the maintenance of the traditional farmers' way of life. Livestock farmers live in the mountainous villages counteracting the population decline and emigration.	Wooded pastures landscape is maintained (if appropriate governance structures will be maintained).
Counteract -ve			
No affect			
Counteract +ve			
Amplifies -ve			
Please use this space to keep track of the sources referred to for this section Interviews			

l) **What additional supporting infrastructure or institutions are involved in the assemblage?**

Tourism offices and regional parks offices are beginning to build strategies in order to valorise the natural resources of Swiss mountains. In this sense, we can mention the “Swissness law” created in 2017. This law regulates under which conditions products can be promoted as “swiss made” or with a swiss origin or with the swiss flag. The main objective is to prevent the marketing of products that are only processed in Switzerland but with zero swiss ingredients in them. The regional brands have based their requirements on this law, hence it is very relevant for food products. The law says that agricultural products must come 100% from Switzerland but in mixed products, ingredients that are not available in Switzerland may be imported.
Please use this space to keep track of the sources referred to for this section https://www.ige.ch/en/law-and-policy/national-ip-law/indications-of-source/swiss-indications-of-source/new-legislation/laws

m) **In Table 29, please note what proportions of the assemblage exist within the MRL, and what proportions are located in other regions, nations/member states, or international space?**

Table 29: Proportions of assemblage across space

	MRL	MRR	Nation	International
Assemblage Practices	40	30	20	10
Assemblage Actors	30	40	25	5
Assemblage Outcomes	30	40	20-25	5-10
Please use this space to keep track of the sources referred to for this section Our estimations.				

n) **In the space below, please consider where there are synergies, and conflicts or problems in the assemblage between VCs.**

Assemblage to overcome the problem of seasonalities of production and consumption

The main problem affecting Tête de Moine PDO is the mismatch between the seasonality of production and the seasonality of sales of this renowned product. The consumption of this fun and festive cheese is concentrated on winter celebrations of Christmas and new year’s day, requiring the cheese to be

produced between August and November, i.e. at the height of the production on pasture. In contrast, grassland milk production reaches its peak in spring, which corresponds to a mature cheese in late summer or early fall, i.e. the low point of cheese consumption.
This leads the processors to apply a strong seasonality of milk payments, pushing them to spread out calving and to adapt the farms to a model producing a limited quantity of milk in the spring and more in the fall. It should be noted that this is very difficult for producers because of the nature of the production, and that total adaptation is not possible. Indeed, Gruyère and Tête de Moine amongst other productions in the region rely heavily on pastures, and any shift to winter can only lead to an increase in food costs, which must be reasoned according to the precise financial incentive of the cheese dairies.

The resolution of this problem is therefore partly deferred to the processors, which distributes the production of other cheese specialties, in particular Gruyère PDO, to compensate for the seasonality of Tête de Moine. The vast majority of cheese dairies of the MRL have a pool of cheese products allowing them to offset the seasonality of Tête de Moine. These are mainly long-term keeping hard cheese or semi-hard cheese, allowing them to sell seasonal spring milk in winter, when sells are better, although some cheese dairies also produce short-terms keeping soft cheeses that have a consumption distributed throughout the year. Thus Gruyère PDO is a particularly complementary production to Tête de Moine, possessing nearly identical prices than the Tête de Moine (between 0.75 and 1 euro per liter), close specifications and a maturation period that is compatible with the processing of seasonal milk. Even the only Tête de Moine cheese dairy that does not produce other cheese regulates its spring and summer overproduction through trade of milk volumes with the only processor in the MRL that is not involved in the production of Tête de Moine, but only in the PDO Gruyère one.

The returns and costs associated with the different products of the cheese factories' heavily vary. The processors producing several products, set a monthly key of repartition of the forecast volumes of milk, and affecting a different price for each product, communicate to each producer the monthly price per litre milk made from this distribution key. The milk producers possessing most of the time the required specifications for all productions and PDOs, this price is often common to all producers of the same processor. With a notable exception : the organic producers, which have access to a higher price, and the minority of cases where producers only have accreditation for PDO Tête de Moine but not for the Gruyère.

In the end, Gruyère PDO cheese is an ideal complement to Tête de Moine PDO: their specifications are similar, pushing farmers to double certification, and the production schedules are very complementary. This is so much so that the only cheese dairy producing exclusively Tête de Moine is only able to function by exchanging volumes with the only cheese factory producing exclusively Gruyère, which alternate according to the time of the year and the price dynamics of the products. Thus, the cheese dairies can propose several months in advance the milk prices paid to the producers, as they have to declare their production volumes upstream, and the cheese makers are able to make a monthly distribution key for the production of the cheeses, and thus to build an aggregated average price for the sale of the milk. Production volumes are thus much more controlled than in industrial milk, due to the power of the cheese interprofessions.

Assemblage of organizing principles at the interprofessional level

Interprofessions are built according to a relatively similar model based on symmetry. In Gruyère as in Tête de Moine, the Interprofession is based on two associations: the producers' association and the cheese makers' and ripeners' association. They elect a president and a board, which serves to federate these groups in the negotiations. The Interprofession is then built on a board model, with 10 people elected by their respective bodies for Tête de Moine: 5 by the producers, 3 by the cheese makers and 2 by the ripeners, responsible for defending the interests of their group in negotiations and electing a neutral mediator president. These interprofessions have a salaried team of varying size that proposes and develops with the elected officials the strategy for promotion, protection and management of the quality and volumes of the product. This last point is essential because these strict volumes planned by the Interprofession, broken down by cheese factory and by producers, are co-constructed by the two links, and ensure a de facto control of prices so that they remunerate all the links in the chain.

This collegial and coercive system has allowed both Tête de Moine and Gruyère value chains to emerge from the crisis better than other Swiss cheese value chains (i.e. Emmentaler PDO) with less structured and balanced interprofessions. That's why we can say that this particular organization is, along with subsidies, a fundamental factor that has allowed these two value chains to better resist the end of quotas than industrial milk.

Please use this space to keep track of the sources referred to for this section

Interviews.

Jeanneaux, Ph., (2018). *Stratégies des filières fromagères sous AOP en Europe. Modes de régulation et performance économique*, Quae Ed.

Magnan, A. (2015). *AOP, Élevage et Soutiens publics : Diagnostic Agraire des Franches-Montagnes Suisses*. ETHZ Ecole Polytechnique Fédérale de Zurich.

Membrez A., Erard-Guenot V., Stegmüller G., Gygax J., Isler O, (2021) *L'univers de la Tête de Moine*, Ed. D+P SA, Delémont

6. Consideration for Further Tasks

a) What would you like to remember or explore further in T4.3 interviews ?

Explore the current and potential assemblages with other activities of the territory such as sustainable tourism and the role of wooded pastures, actors such as the Natural Parks, or the horse breeding of the Franches Montagnes...
<u>Please use this space to keep track of the sources referred to for this section</u>

b) What might you want to focus on for the T4.4 workshop on current performance of the VC assemblage ?

See below
<u>Please use this space to keep track of the sources referred to for this section</u>

c) What issues regarding sustainability, vulnerability and resilience seem relevant for T4.5 ? *Also consider, how can local assets be mobilized into relational configurations with networks to build resilient and sustainable value chains? (including green recovery, C19 recovery)?*

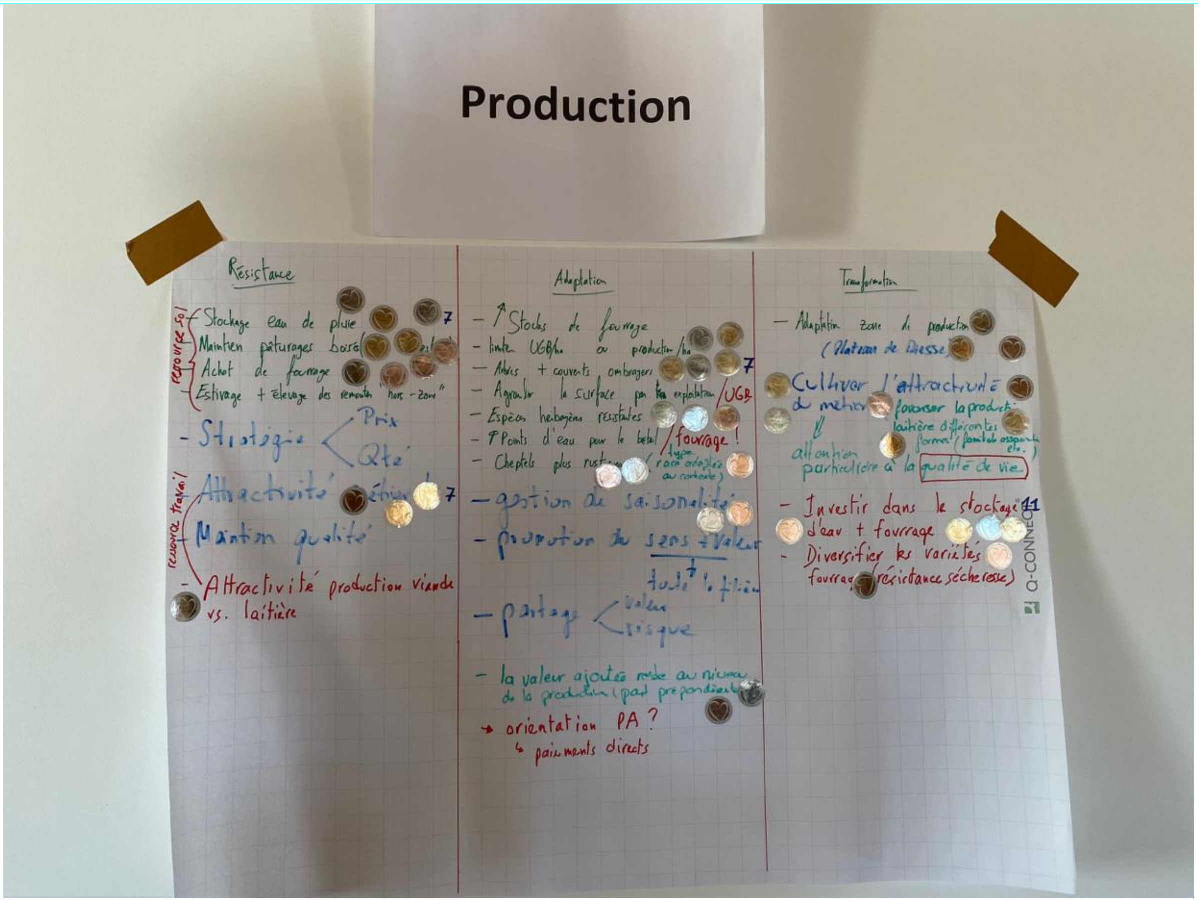
Explore individual and collective strategies to promote the sustainability and socio-ecological resilience of Tête de Moine production. This can be done according to different temporalities and degrees of investment: - short term and low investment (*robustness - resistance strategies*); - medium term and medium investment (*adaptation strategies*); - long term and high investment (*transformation strategies*) Our participative approach showed that each issue is to be clearly identified of formulated by stakeholders before being addressed in a coherent strategy. It thus raises questions about how we design resilience strategies at different spatio-temporal and political levels, and calls for a collective approach in strategy designing processes.
<u>Please use this space to keep track of the sources referred to for this section</u> Participatory workshop

d) What strategies can improve the resilience and sustainability of value chains? (T4.6)

During our participatory workshop on May 20, 2022, different strategies were identified.

Concerning the **production stage**, there was a consensus on a solution valid for both the short term (resistance) and the medium term (adaptation). This is the *preservation of trees in wooded pastures*, as their multiple functions are important. They allow the animals to shelter from the heat in the hottest hours, they have a buffer effect on the grass, which benefits from the shade to better resist droughts. Breeders are aware of this and positively evaluate these central elements of the Jura landscape. Concerning processing solutions (long term), it is a matter of supporting investments in drying and storage infrastructures for fodder and hay, and the development of new fodder varieties.

In a longer term perspective, public authorities must *support producers in gradually increasing the proportion of grass in the cows' ration*. For example, the few producers who are in organic farming must provide 95% of grass to the cows. These farmers often breed local cows (Montbéliarde or Swiss Fleckvieh). Although they do not produce the same milk yield as the black and red Holsteins, these double attitude breeds have the advantage of also providing quality meat by using the organic fodder. The market trend for organic meat is expected to grow. Again in the long term, *producers must also be supported in diversifying and transforming their production systems*, encouraging agrotourism, the production of crops for the local market (potatoes, cereals, etc.), or the reception of children and other audiences.



The outcome of the collective exercise made about the production stage of the value chain.

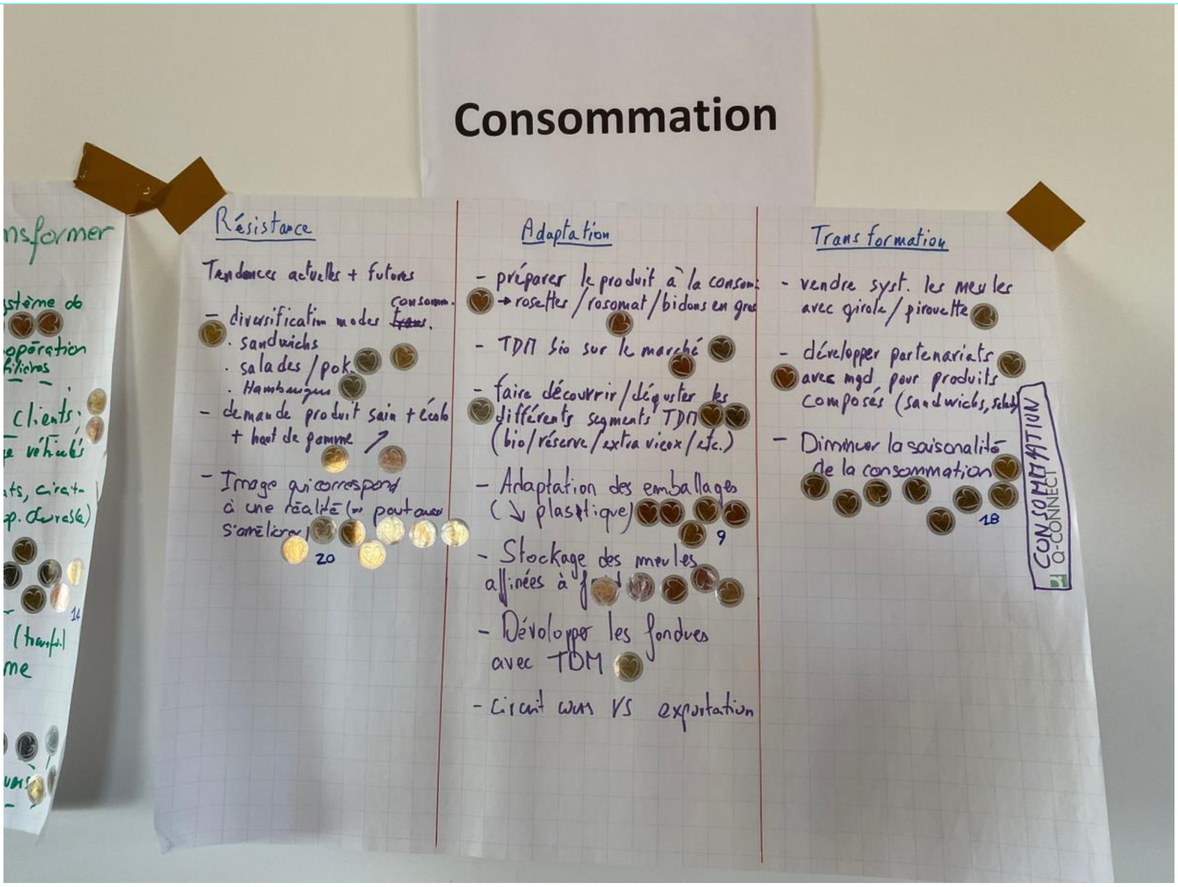
Concerning the **processing** phase, the producers have formulated the hypothesis of *a new cheese dairy*. In fact, in the next few years the production of Tête de Moine is expected to increase. The board of the interprofessional organization is aware about this possibility, but this will be implemented only when the quantity of milk destined for Tête de Moine has increased considerably. To this end, the Créalait project seeks to encourage producers to switch from industrial milk to Tête de Moine milk, for example through subsidies for the installation of barn dryers. Another important issue is the *attractiveness of the professions related to cheese making*. Even if these jobs are reasonably well paid, the actors have noted a loss of interest in these professions, with some difficulties in recruiting new workers from the region and an increase in the number of cross-border workers or foreigners.

The outcome of the collective exercise made about the processing stage of the value chain.

Concerning the **distribution and marketing** stage, the actors of the value chain have proposed different paths. In the short term, it is a question of better *communicating the values* that underlie the high quality of the product: respect for animal welfare and natural resources, and landscape management. In the medium term, regarding adaptation, the priority is a strategy based on *maintaining as much added value as possible in the territory*, in continuity with what is done today. Finally, in the long term, regarding transformation strategies, the actors underlined the importance of *building links between production, processing, and tourism activities*. This can concern individual structures (agrotourism), but also territorial approaches aiming at creating synergies with other activities (natural parks, horse riding, sports, etc.). These approaches are still in their infancy and need to be better supported and strengthened.

The outcome of the collective exercise made about the distribution & marketing stage of the value chain.

Concerning the **consumption stage**, the actors of the value chain consider it important to emphasize that the *positive image of Tête de Moine corresponds to a reality*. In other words, it is important to maintain and reinforce the authenticity of the product, both at the production and processing levels, but also at the level of promotion and communication. In terms of adaptation, as in the previous phase, that of marketing and distribution, the actors consider that it is necessary to try to capture the added value and maintain it in the territory. In terms of adaptation, as in the previous phase, that of marketing and distribution, the actors consider that it is necessary to try to capture the added value and maintain it in the territory. This can be done by diversifying distribution channels, establishing links with other sectors (tourism), and being part of a territorial marketing strategy. Finally, in the long term, the actors insisted that consumption must take into account the realities of the value chain, i.e. the strong *seasonality* of purchases, concentrated between October and January. This requires collective learning, which necessarily takes time.



The outcome of the collective exercise made about the consumption stage of the value chain.

NOTE ABOUT THE EXERCICE

Four groups worked separately on each stage of the value chain. Every 10 minutes, the group changed table (and stage of the value chain). Each time, they had to identify issues and possible strategies to deal with them, in the short term (resistance), medium term (adaptation) and in the long term (transformation). At the end, the different strategies are presented by a spokesperson. Then, all participants are invited to give their preferences for a strategy in each of the columns (short/resistance - medium/adaptation - long/transformation). To do this, they use three stickers for each column: one in gold (3 pts), one in silver (2 pts) and one in bronze (1 pt). Collective discussions help to identify the challenges to be met, the key or missing actors and the pathways to explore.

Please use this space to keep track of the sources referred to for this section

Participatory workshop.

e) Please also note any other data or observations that might be useful to WP5 (clustering); WP6 (foresight) or WP7 (policy).

Key messages

- Economic resilience
- Extensive pasture
- Consideration of the environment directly at the interprofessional level
- Recognise the importance and accentuate research of wooded pastures

The Tête de Moine value chain has made it possible to cope with the milk crisis in the Swiss Jura, by better remunerating dairy farmers and ensuring that their production is sold. In the face of the current climate crisis and the intensification of pastures, efforts to preserve this land use must be made. We suggest including a better consideration of the environment directly at the interprofessional level. In its vision 2035 for mountain regions, the Swiss Association for Mountain Regions (SAB) invites regional actors to strengthen collaboration, to identify and exploit development and innovation potentials and to proactively shape the processes of change (Kadelbach, 2019). A response from regional stakeholders such as the interproffesion Tête de Moine could be a first step towards adaptation to present and future threats.
At a higher level, such as cantonal or federal, policies should also give a special status to woodland pastures, firstly to recognise their importance, and secondly to accentuate research for a better adaptation to climate change, such as diversifying the tree species (with collective tools like "plans de

gestion intégrée”). To limit the dependence on public support and exports, policies should also promote diversification, innovation and short supply chains. Indeed, the diversification of agricultural activities directly on farm, such as through the development of agri-tourism or the promotion of other agricultural products, could limit these dependencies and thus increase resilience.
Please use this space to keep track of the sources referred to for this section Kadelbach, T. (2019). Die Berggebiete und ländlichen Räume 2035 Herausforderungen und Chancen. Bern.

7. Compiled reference list

Please use this section to alphabetically compile references recorded in individual sections of the report in the style shown in Table 30. We are grateful for careful completion of this list in support of Deliverable reporting.

Table 30: Referencing style to be adopted

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MOVING

MOUNTAIN VALORIZATION THROUGH INTERCONNECTEDNESS AND GREEN GROWTH