



As we are unable to give precise numbers of costs and time schedule in the moment.

All following has to be taken

“Cum grano salis”





The time for the R & D phase is dominated by the time for the MICE Experiment.

MICE **~2017** **defined by funding situation**

Other topics to be investigated until then (list not complete):

Proton driver bunch compression (RCS)

RF - efficient 201 MHz RF generators

- reliable high field 201 MHz SC cavities (prototyping)

Kicker system & high field septum (prototyping)

FFAG – magnet design (prototyping) & chromaticity correction

Ring diagnostics



EUROnu construction planning	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Land negotiations						
Environmental Impact Study						
Building permits						
Detailed design & tendering						
Construction						

End of MICE R & D 2017

Construction start: **~2020**



	Length [m]	Width [m]	Height [m]	Diameter [m]	Unit [CHF/m]	Total [CHF]
<i>Tunnels</i>						
Transfer tunnels	1730			3.5	9,130	15,794,900
Accumulator ring	185.5			4.5	12,080	2,240,840
RLA I	216			4.5	12,080	2,609,280
RLA II	510			4.5	12,080	6,160,800
Decay ring	1608.8			4.5	12,080	19,434,304
Tunnels TOTAL	4973.6					46,240,124

<i>Caverns</i>						
Detector caverns	55	20	35	60	62,700	3,448,500
Rotator – prelinac	150	20	22	14	62,700	9,405,000
Target station	38.4	17.1	21.9	14	62,700	2,407,680
<i>Decay ring</i>						
- Cavern1	80	11	8	12	62,700	5,016,000
- Cavern2	20	12.5	10	14	62,700	1,254,000
- Cavern3	20	12.5	10	14	62,700	1,254,000
- Cavern4	50	11	8	12	62,700	3,135,000
<i>RLA complex</i>						
- Cavern1	25	11	8	12	62,700	1,567,500
- Cavern2	25	11	8	12	62,700	1,567,500
- Cavern3	25	11	8	12	62,700	1,567,500
- Cavern4	25	11	8	12	62,700	1,567,500
Caverns TOTAL	513.4					32,190,180

<i>Shafts</i>						
Pre linac			60	9	70,130	4,207,800
RLA I-II			60	6	41,315	2,478,900
<i>Decay Ring</i>						
- Shaft 1			60	9	70,130	4,207,800
- Shaft 2			60	9	70,130	4,207,800
- Shaft 3			110	9	70,130	7,714,300
Detector area shaft			110	18	199,400	21,933,560

Shafts TOTAL 44,750,160

UNDERGROUND civil Engineering total 123,180,464

Civil engineering
finished:

~2023



	TCD	MBU	MPR	MCC	MLA	RLA1	RLA2	MDR
Magnets	83	44	56	136	50	303	361	200.00
RF cavities	0	33	56	100	82	28	82	

Procurement in parallel to civil engineering finished : **~2023 (-2024)**

Construction **~2022 - 2025**

Commissioning **~ 2024 – 2026**

While data taking in 10 years from now seems overly optimistic a 20 years time schedule is similar pessimistic (neglecting politics ;-)).



The costs given on the next slides need to be seen in the light of :

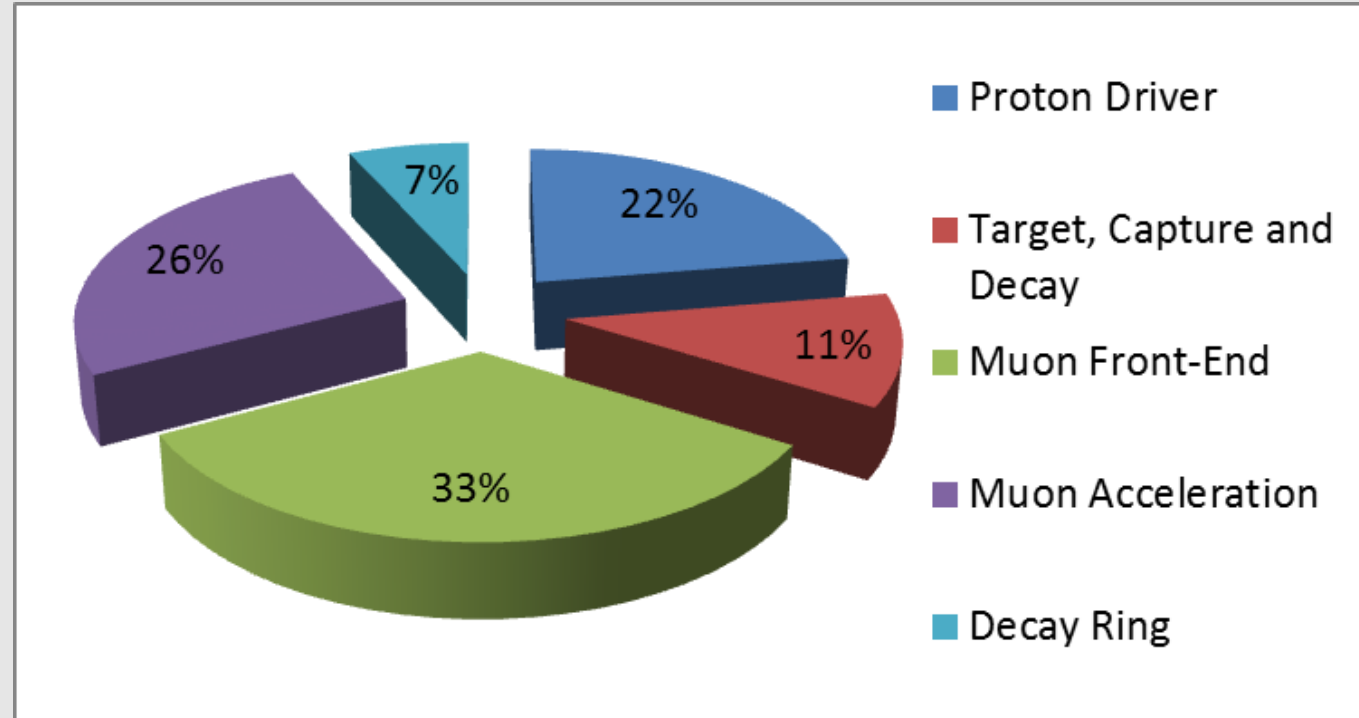
Muon acceleration number given before the reoptimisation of accelerator chain to new “baseline” energy (10 GeV)
First results indicate a reduction of up to 20 %

Muon decay ring number given before the reoptimisation to new “baseline” energy (10 GeV)
First results indicate a reduction of up to 25 %

Muon front end cost is dominated by cost of the cooling section ($\sim 2/3$ of total FE cost).



- Proton driver
- Target
- **Front End**
- **Muon**
acceleration
- **Decay ring**



black = similar for all facilities (SB plus β -beam)

blue = similar with β -beam (the cost for LENF rather half - 1/3)

red = NF only