

From Formation to Closure – A Navigator's Perspective* on the Work and Cash Flow Cycle of a Small Business and its Main Delays * i.e. A General Overview for Directors

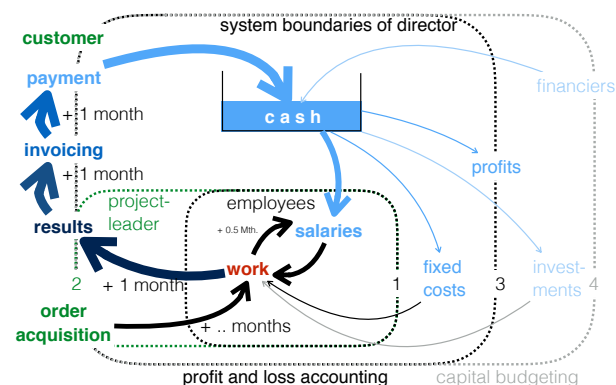
The cash flow cycle is essential to a business's survival. Often, the process is delayed between the stages of acquiring orders, creating work results, invoicing, and receiving payments from customers. Managing cash flow can therefore be a challenge, particularly in the start-up phase or when expanding.

Subject of discussion and methodology

A small business is generally dependent on the output of its employees (fixed costs are low). To keep the business running, money is needed:

- Cash flow (input and output): transformation of cash into work results (by paying salaries) and back into cash again (step by step). On the customer's side (Fig.1 on the left), delays have an impact on the work and cash flow cycle.
- Balance: profit and loss accounting.

Fig. 1 shows four system boundaries:



- 1 Employees produce results. Salaries (outgoing) have to be paid more or less at the same time that the work is carried out (no delay).
- 2 Project managers are responsible for order acquisition and the presentation of results (reports). Delays are the time between:
 - .. successful order acquisition and execution of work (worklist);
 - .. doing the actual work and delivering the results to the customer and invoicing (work in progress);
 - .. invoicing and receiving payments (incoming). (debtors = outstanding receivables).
- 3 The board of directors is responsible for strategic issues (for scenarios, see below) and overheads (administration, profit and loss accounting), etc.
- 4 Capital budgeting includes starting capital and investments. They have to be financed by the business itself or by finding external sources.

Fig. 1 System sketch with cash flow cycle.

Delays matter – a comparison

The impact of delays can be seen on both cash and equity. A comparison is made for the duration of either 0 or 3 months between paying salaries and receiving payments from the customers (work in progress + debtors).

Equity is defined as cash + work in progress + debtors (outstanding receivables), while the worklist (work acquired but not yet started) is not added but represents a hidden reserve in accounting terms.

Scenarios within the life cycle of a business

Six scenarios within the life cycle of a business are studied, based on its size (number of employees).

Scenario	Size of busines at start [full-time jobs in %]	end
Formation	0	400
Business as usual	400	400
Expansion to 200 %	400	800
Downsizing to 50 %	400	200
Closure	400	0
Serious trouble	400	0

Fig. 1 Scenarios within the life cycle of a business.

For each scenario, a decision on whether to change is made at the beginning of year X. The transition is completed after one year. The time sequence starts in year X-1 and ends in year X+2. Note that it takes two years to see the full effects due to the delays.

Parameters – ceteris paribus

All other parameters (besides size and delays) are defined within a typical range with no variation, based on the concept of ceteris paribus (i.e. all other things being equal). In particular, it is assumed that the

- .. workload of each employee is 100 %. This can be a challenging target on its own to meet continuously. (An exception is "serious trouble" – it means a severely low workload and therefore going bankrupt.)
- .. business is sustainable and allows a yearly profit of 10 % of the revenues or ~ 5 % of the starting capital;
- .. appropriation of the profits is limited. A minimum cash base of 25 % of the planned revenues per year is defined. This precautionary measure takes into account fluctuations due to large individual payments (in or out) and late payments (in), etc.

Business as usual is easier without delays

Many businesses try to minimise delays in their cash flow cycle with short payment terms or cash on delivery. Without delays, work commenced plus debtors equals zero. This means they are converted into cash immediately and equity is minimised.

Balance as at 31/12	without		with delay	
	start	end	start	end
cash	250	250	250	250
equity	250	250	500	500
profit per year	100	100	100	100

Fig. 2 Comparison of balance for business as usual.

Equity (and required starting capital) is therefore only 50 % compared to a business with delays.

Formation stage: requires capital and full of risks

The formation stage is full of risks, as the business has to raise enough capital (expenses first, earnings later) and acquire orders quickly.

Balance as at 31/12	without delay		with delay	
	start	end	start	end
cash	475	250	725	250
equity	475	250	725	500
profit per year	0	100	0	100
new capital	475	-	725	-

Fig. 3 Balance in the formation stage.

With delays, businesses need more starting capital, as there is also a delay between carrying out the work and getting paid (work in progress + debtors).

Given the definition for equity without worklist, starting capital diminishes during the formation stage because of the delay between acquiring orders and carrying out work. Equity would be higher in the end if there was no such delay or if the worklist were added to equity.

Expansion needs new capital

Balance as at 31/12	without delay		with delay	
	start	end	start	end
cash	250	500	250	500
equity	250	500	500	1,000
profit per year	100	200	100	200
new capital	300	-	550	-

Fig. 4 Balance before and after expansion.

With delays, businesses need more new capital to expand. This must be found from external sources (e.g. venture capital or going public) or from within the business itself. In this case, the risk of failure will be higher because of fluctuations in cash.

Downsizing and closure create backflow

It can be beneficial to reduce the size of a flourishing business to recoup the starting capital.

Balance as at 31/12	without delay		with delay	
	start	end	start	end
cash	250	125	250	125
equity	250	125	500	250
profit per year	100	40	100	40
capital backflow	-	230	-	356

Fig. 5 Balance before and after downsizing.

The backflow of capital is almost proportional to the equity including the worklist (= invested starting capital); it is higher for the business if there are delays.

Balance as at 31/12	without delay		with delay	
	start	end	start	end
cash	250	0	250	0
equity	250	0	500	0
profit per year	100	0	100	0
capital backflow	-	500	-	750

Fig. 6 Balance before and after closure.

The capital backflow when shutting down is equal to equity including worklist. Note that this is only the case at a constant workload of 100 %, so the decrease in the number of employees and acquisition have to be closely coordinated. Otherwise, capital backflow may become negative, resulting in debt.

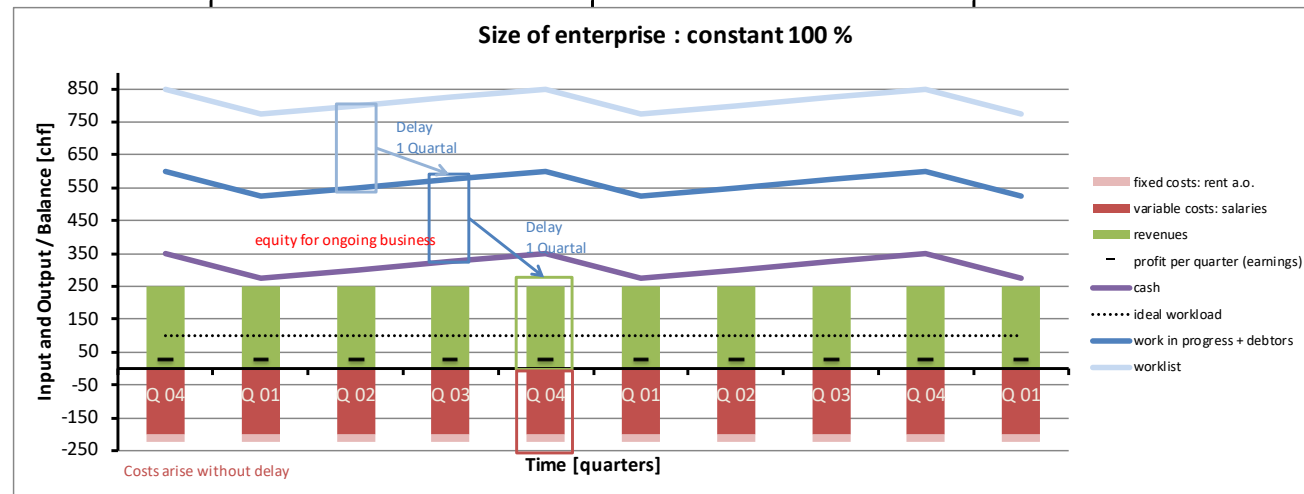
Serious trouble and the emergency brake

The board of directors should always be aware of imminent difficulties and take fast and firm action to avoid insolvency in case of problems. To avoid running out of cash, a suboptimal workload must be corrected by adequate downsizing or enforced (and successful!) acquisition.

Conclusion and practical benefit

To successfully direct a business through its life cycle, both of the following are needed: high precision work (accurate accounting and administration, etc.) and a navigator's perspective* of the big picture (a systems engineering view). Further discussions can be held about changes in delays during business as usual, etc. * i.e. a general overview for directors.

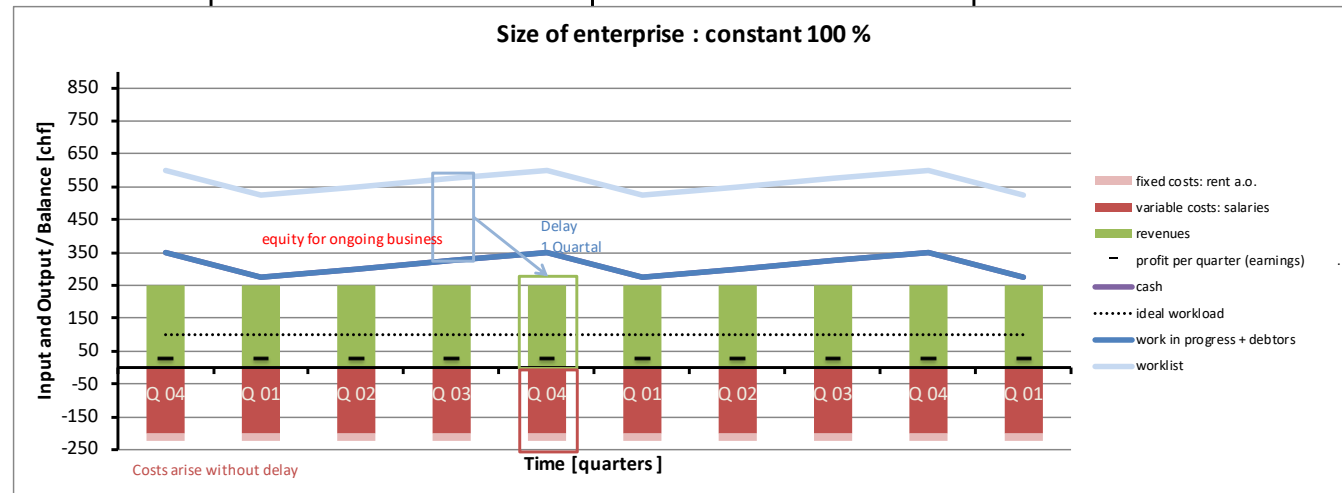
quarters	year X-1				year X				year X+1				year X+2			
	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	
size of enterprise [%]	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
full time jobs	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]															
worklist		250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
worklist = contracts existing, work not done yet			delay 1 quarter												delay 1 quarter	
work in progress + debtors			250	250	250	250	250	250	250	250	250	250	250	250	250	250
				delay 1 quarter	work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet						delay 1 quarter	
input and output (cash flow)	all data in [kchf]															
revenues				250	250	250	250	250	250	250	250	250	250	250	250	250
annual sales				=f(revenues)	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000
variable costs: salaries				=f(no. of employees, work load)	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
fixed costs: rent a.o.					-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
expenses				=Σ variable + fixed costs	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225
profit per quarter (earnings)				=revenues - expenses	25	25	25	25	25	25	25	25	25	25	25	25
appropriation of earnings				=f(cash, minimaler Bestand)		-100			-100							-100
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*					250	250	250	250	250	250	250	250	250	250	250	250
cash				325	350	275	300	325	350	275	300	325	350	275	300	325
cash + work in progress + debtors				=Σ	600	525	550	575	600	525	550	575	600	525	550	575
cash + work i.p. + deb. + worklist				=Σ	850	775	800	825	850	775	800	825	850	775	800	825



Business as usual with delay

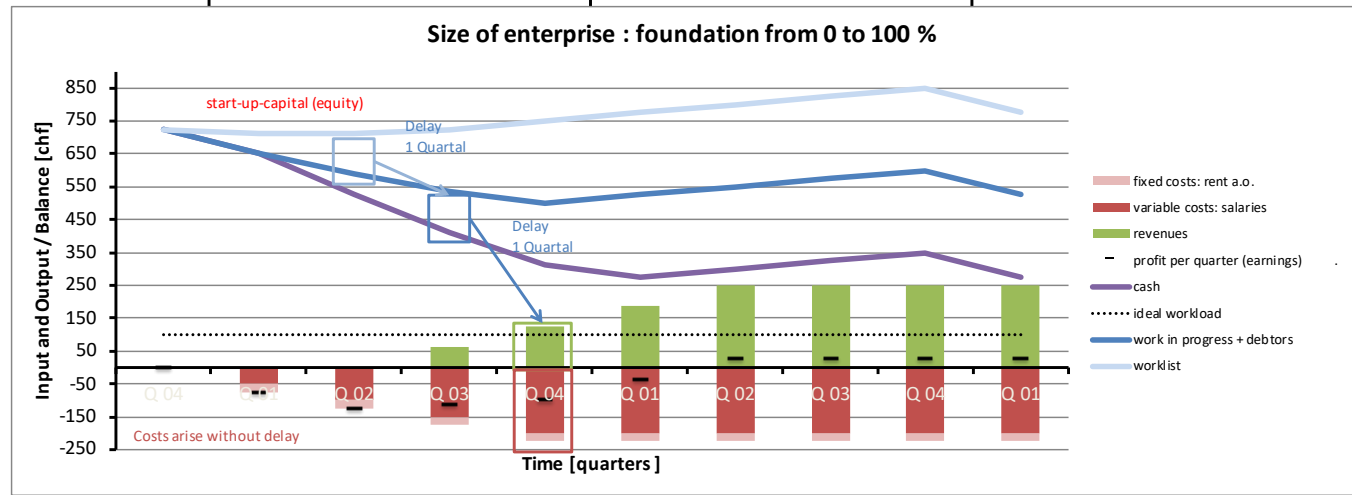
quarters	year X-1				year X				year X+1				year X+2			
	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	
size of enterprise [%]	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
full time jobs	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]															
worklist			250	250	250	250	250	250	250	250	250	250	250	250	250	250
worklist = contracts existing, work not done yet				delay 1 quarter												delay 1 quarter
work in progress + debtors			0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arbeiten werden sofort in Rechnung gestellt und bezahlt (Prinzip Barzahlung bei Coiffeur)					work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							work commenced plus debtors are converted into cash immediately
input and output (cash flow)	all data in [kchf]															
revenues				250	250	250	250	250	250	250	250	250	250	250	250	250
annual sales				=f(revenues)	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000	1'000
variable costs: salaries				=f(no. of employees, work load)	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
fixed costs: rent a.o.					-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
expenses				=Σ variable + fixed costs	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225
profit per quarter (earnings)				=revenues - expenses	25	25	25	25	25	25	25	25	25	25	25	25
appropriation of earnings				=f(cash, minimaler Bestand)		-100			-100							-100
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*					250	250	250	250	250	250	250	250	250	250	250	250
cash			325	350	275	300	325	350	275	300	325	350	275	300	325	350
cash + work in progress + debtors				=Σ	350	275	300	325	350	275	300	325	350	275	300	325
cash + work i.p. + deb. + worklist				=Σ	600	525	550	575	600	525	550	575	600	525	550	575

Business as usual without delay



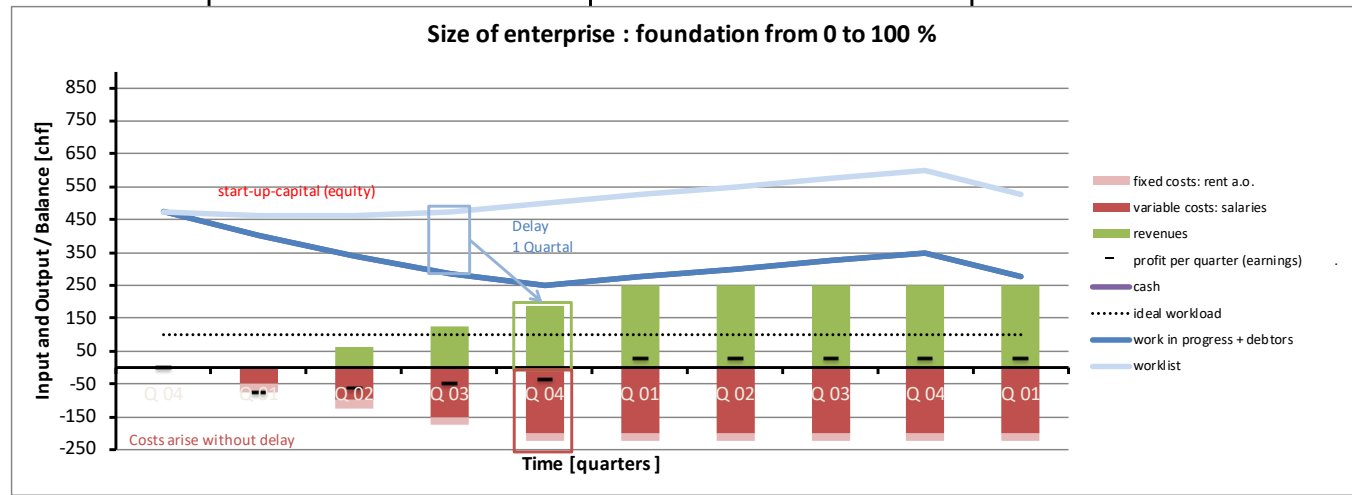
quarters	year X-1				year X				year X+1				year X+2				
	Q 01	Q 02	Q 03	Q 04	foundation	build up	build up	build up	build up	business as usual	business as usual	business as usual	business as usual	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]																	
full time jobs	0	0	0	0	100	200	300	400	400	400	400	400	400	400	400	400	400
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]																
worklist		0	0	0	63	125	188	250	250	250	250	250	250	250	250	250	250
worklist = contracts existing, work not done yet			delay 1 quarter												delay 1 quarter		
work in progress + debtors			0	0	0	63	125	188	250	250	250	250	250	250	250	250	250
				delay 1 quarter	work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							delay 1 quarter	
input and output (cash flow)	all data in [kchf]																
revenues				0	0	0	63	125	188	250	250	250	250	250	250	250	250
(planned) annual sales							1'000										
variable costs: salaries				0	-50	-100	-150	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
fixed costs: rent a.o.				0	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
expenses				0	-75	-125	-175	-225	-225	-225	-225	-225	-225	-225	-225	-225	-225
profit per quarter (earnings)				0	-75	-125	-113	-100	-38	25	25	25	25	25	25	25	25
appropriation of earnings				0	0	0	0	0	0	0	0	0	0	0	0	0	0
balance	all data in [kchf]																
minimum cash = 25 % of planned annual sales*				250	250	47	47	47	250	234	234	234	234	250	250	250	250
cash			0	725	650	525	413	313	275	300	325	350	350	275	275	275	275
cash + work in progress + debtors				725	650	588	538	500	525	550	575	600	600	525	525	525	525
cash + work i.p. + deb. + worklist				725	713	713	725	750	775	800	825	850	850	775	775	775	775

Formation with delay



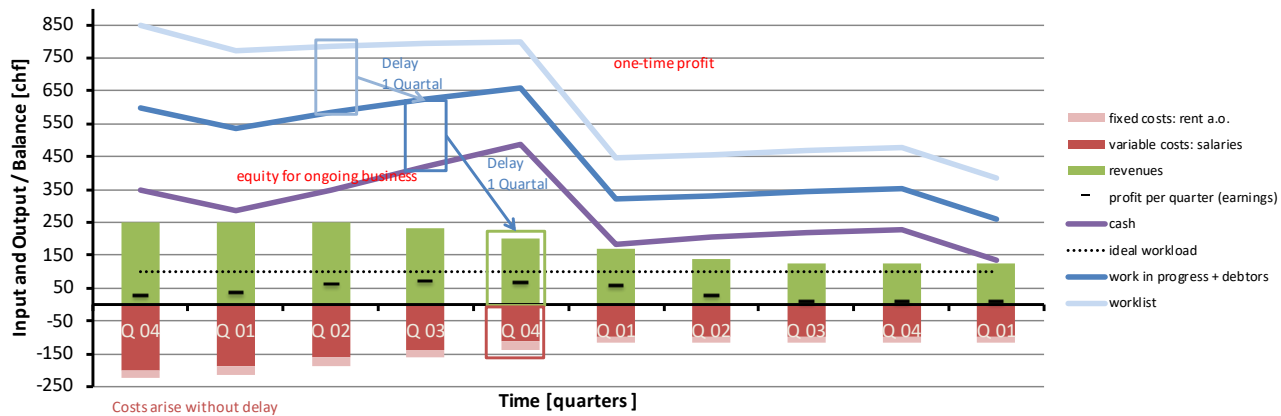
quarters	year X-1				year X				year X+1				year X+2			
	Q 01	Q 02	Q 03	Q 04	foundation	build up	build up	build up	build up	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	
size of enterprise [%]																
full time jobs	0	0	0	0	100	200	300	400	400	400	400	400	400	400	400	
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
outstanding receivables	all data in [kchf]															
worklist	0					63	125	188	250	250	250	250	250	250	250	
worklist = contracts existing, work not done yet																
work in progress + debtors																
Arbeiten werden sofort in Rechnung gestellt und bezahlt (Prinzip Barzahlung bei Coiffeur)																
input and output (cash flow)	all data in [kchf]															
revenues						0	63	125	188	250	250	250	250	250	250	
(planned) annual sales						1'000										
variable costs: salaries						0	-50	-100	-150	-200	-200	-200	-200	-200	-200	
fixed costs: rent a.o.						0	-25	-25	-25	-25	-25	-25	-25	-25	-25	
expenses						0	-75	-125	-175	-225	-225	-225	-225	-225	-225	
profit per quarter (earnings)						0	-75	-63	-50	-38	25	25	25	25	25	
appropriation of earnings						0				0					-100	
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*						250	250	94	94	94	250	250	250	250	250	
cash						0	475	400	338	288	250	275	300	325	350	
cash + work in progress + debtors							475	400	338	288	250	275	300	325	350	
cash + work i.p. + deb. + worklist							475	463	463	475	500	525	550	575	600	

Formation without delay



quarters	year X-1				year X				year X+1				year X+2			
	business as usual	business as usual	business as usual	business as usual	downsizing	downsizing	downsizing	downsizing	downsizing	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	
size of enterprise [%]	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
full time jobs	400	400	400	400	375	325	275	225	200	200	200	200	200	200	200	200
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]															
worklist	250	250	250	250	234	203	172	141	125	125	125	125	125	125	125	125
worklist = contracts existing, work not done yet	delay 1 quarter															
work in progress + debtors		250	250	250	250	234	203	172	141	125	125	125	125	125	125	125
	work in progress this means work performed, not yet invoiced															
	debtors = invoices sent to costumers but not paid yet															
				250	250	250	234	203	172	141	125	125	125	125	125	125
	delay 1 quarter															
input and output (cash flow)	all data in [kchf]															
revenues				250	250	250	234	203	172	141	125	125	125	125	125	125
(planned) annual sales	=f(revenues) 1000															
variable costs: salaries				-200	-188	-163	-138	-113	-100	-100	-100	-100	-100	-100	-100	-100
fixed costs: rent a.o.	downsizing -25															
expenses	=∑ variable + fixed costs															
profit per quarter (earnings)				25	38	63	72	66	57	26	10	10	10	10	10	10
appropriation of earnings				-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
	high revenu: getting back starting capital (293)															
	high revenu: getting back starting capital (63)															
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	250	234	234	234	125	125	125	125	125	125	125	125
cash		325	350	350	288	350	422	488	182	208	218	228	228	135	135	135
cash + work in progress + debtors			600	538	584	625	659	659	323	333	343	353	353	260	260	260
cash + work i.p. + deb. + worklist			850	772	788	797	800	800	448	458	468	478	478	385	385	385

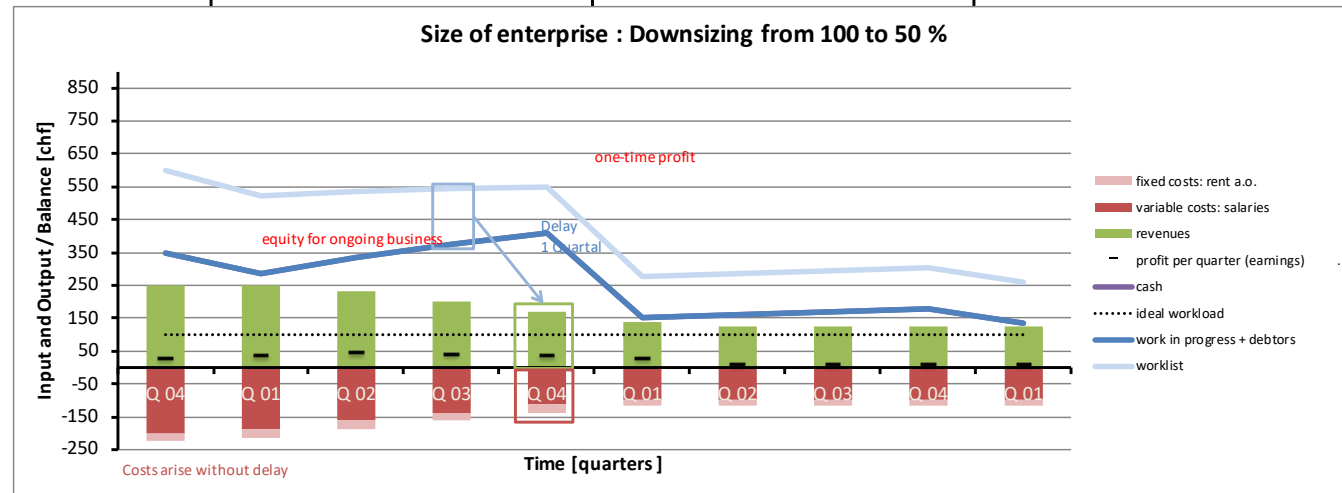
Size of enterprise : Downsizing from 100 to 50 %



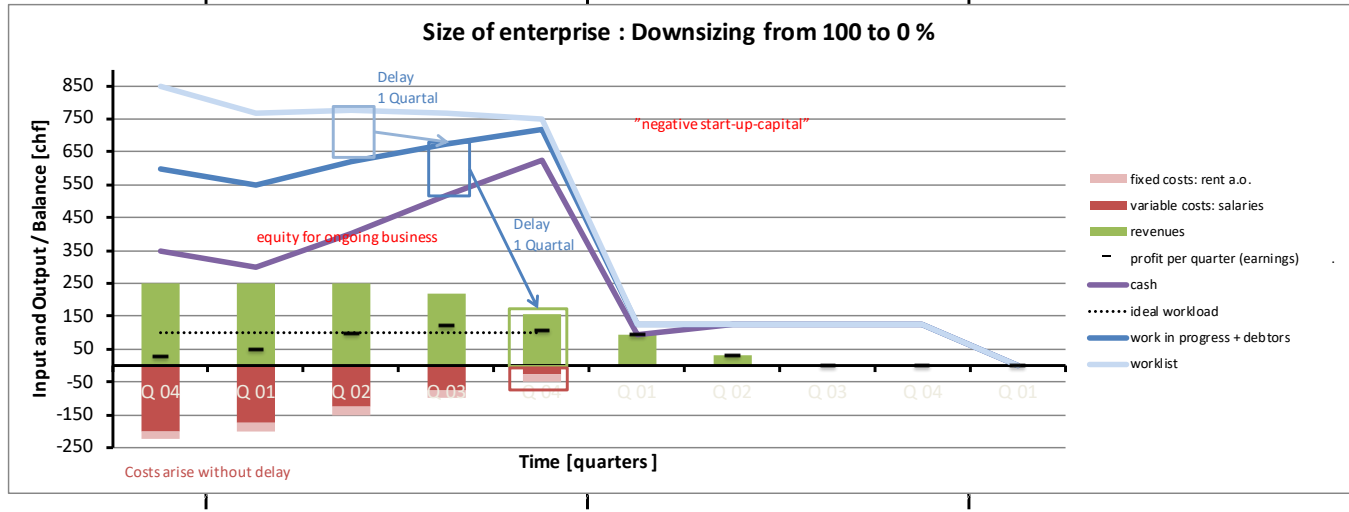
Downsizing with delay

quarters	year X-1				year X				year X+1				year X+2			
	business as usual Q 01	business as usual Q 02	business as usual Q 03	business as usual Q 04	downsizing Q 01	downsizing Q 02	downsizing Q 03	downsizing Q 04	downsizing Q 01	business as usual Q 02	business as usual Q 03	business as usual Q 04	business as usual Q 01	business as usual Q 02	business as usual Q 03	business as usual Q 04
size of enterprise [%]	400	400	400	400	375	325	275	225	200	200	200	200	200	200	200	200
full time jobs	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ideal workload																
outstanding receivables	all data in [kchf]															
worklist			250	250	234	203	172	141	125	125	125	125	125	125	125	125
worklist = contracts existing, work not done yet				delay 1 quarter												delay 1 quarter
work in progress + debtors			0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arbeiten werden sofort in Rechnung gestellt und bezahlt (Prinzip Barzahlung bei Coiffeur)					work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							work commenced plus debtors are converted into cash immediately
input and output (cash flow)	all data in [kchf]															
revenues			250	250	250	234	203	172	141	125	125	125	125	125	125	125
annual sales			=f(revenues)	1000	1'000	859	859	859	500	516	516	516	500	516	516	516
variable costs: salaries			=f(no. of employees, work load)	-200	-188	-163	-138	-113	-100	-100	-100	-100	-100	-100	-100	-100
fixed costs: rent a.o.			downsizing	-25	-25	-25	-25	-25	-15	-15	-15	-15	-15	-15	-15	-15
expenses			=Σ variable + fixed costs	-225	-213	-188	-163	-138	-115	-115	-115	-115	-115	-115	-115	-115
profit per quarter (earnings)			=revenues - expenses	25	38	47	41	34	26	10	10	10	10	10	10	10
appropriation of earnings			=f(cash, minimaler Bestand)		-100				-284							-56
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	250	215	215	215	125	129	129	129	125	135	135	135
cash			325	350	288	334	375	409	151	161	171	181	135	135	135	135
cash + work in progress + debtors			=Σ	350	288	334	375	409	151	161	171	181	135	135	135	135
cash + work i.p. + deb. + worklist			=Σ	600	522	538	547	550	276	286	296	306	260	260	260	260

Downsizing without delay



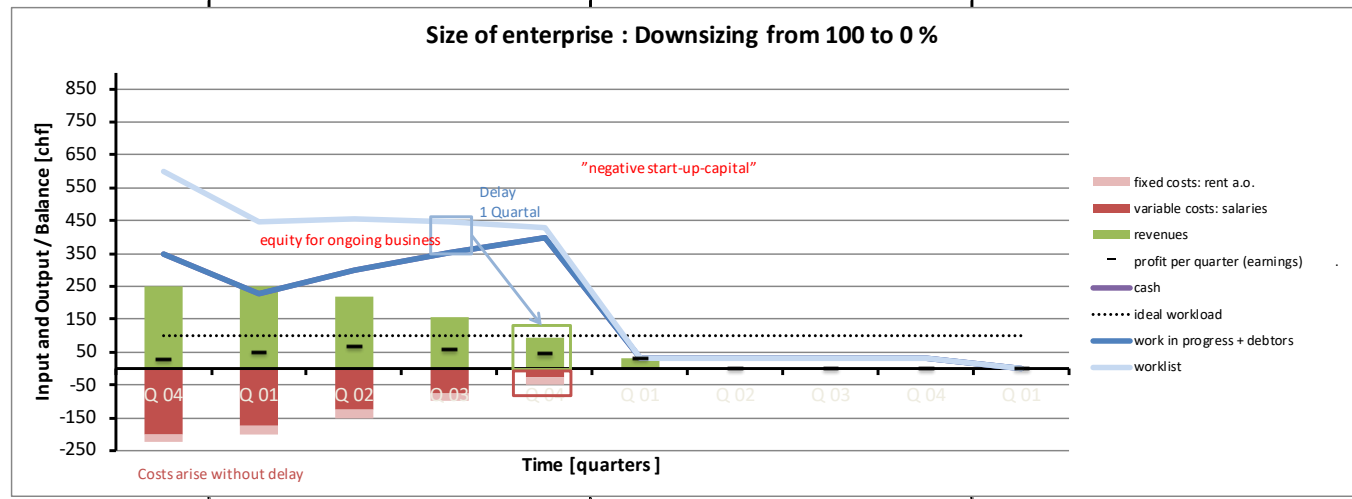
quarters	year X-1				year X				year X+1				year X+2			
	Q 01	Q 02	Q 03	Q 04	downsizing	downsizing	downsizing	downsizing	downsizing	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]	400	400	400	400	350	250	150	50	0	0	0	0	0	0	0	0
full time jobs	100	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0
ideal workload																
outstanding receivables	all data in [kchf]															
worklist	250	250	250	250	219	156	94	31	0	0	0	0	0	0	0	0
worklist = contracts existing, work not done yet																
work in progress + debtors		250	250	250	250	219	156	94	31	0	0	0	0	0	0	0
input and output (cash flow)	all data in [kchf]															
revenues				250	250	250	219	156	94	31	0	0	0	0	0	0
(planned) annual sales				1000	1000	875	875	875	0	0	0	0	0	0	0	0
variable costs: salaries				-200	-200	-175	-75	-25	0	0	0	0	0	0	0	0
fixed costs: rent a.o.				-25	-25	-25	-25	-25	0	0	0	0	0	0	0	0
expenses				-225	-200	-150	-100	-50	0	0	0	0	0	0	0	0
profit per quarter (earnings)				25	50	100	119	106	94	31	0	0	0	0	0	0
appropriation of earnings				-100	-100				-625				-125			
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	250	219	219	219	0	0	0	0	0	0	0	0
cash		325	350	300	400	519	625	625	94	125	125	125	0	0	0	0
cash + work in progress + debtors				600	550	619	675	719	125	125	125	125	0	0	0	0
cash + work i.p. + deb. + worklist				850	769	775	769	750	125	125	125	125	0	0	0	0



Closure with delay

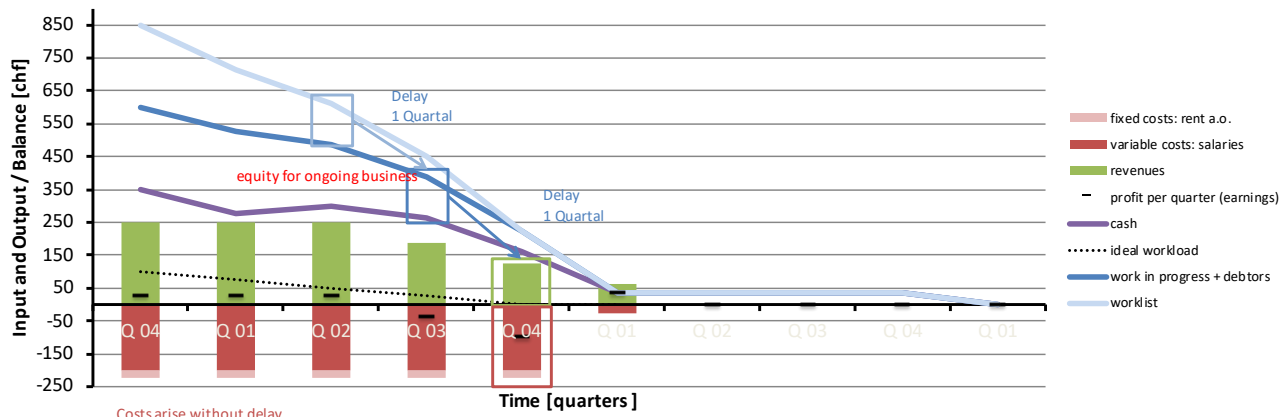
quarters	year X-1				year X				year X+1				year X+2			
	business as usual Q 01	business as usual Q 02	business as usual Q 03	business as usual Q 04	downsizing Q 01	downsizing Q 02	downsizing Q 03	downsizing Q 04	downsizing Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]	400	400	400	400	350	250	150	50	0	0	0	0	0	0	0	0
full time jobs	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ideal workload																
outstanding receivables	all data in [kchf]															
worklist			250	250	219	156	94	31	0	0	0	0	0	0	0	0
worklist = contracts existing, work not done yet				delay 1 quarter												delay 1 quarter
work in progress + debtors			0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arbeiten werden sofort in Rechnung gestellt und bezahlt (Prinzip Barzahlung bei Coiffeur)					work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							work commenced plus debtors are converted into cash immediately
input and output (cash flow)	all data in [kchf]															
revenues				250	250	219	156	94	31	0	0	0	0	0	0	0
annual sales				=f(revenues) 1000	719	719	719	719	0	0	0	0	0	0	0	0
variable costs: salaries				=f(no. of employees, work load) -200	-175	-125	-75	-25	0	0	0	0	0	0	0	0
fixed costs: rent a.o.				downsizing -25	-25	-25	-25	-25	0	0	0	0	0	0	0	0
expenses				=Σ variable + fixed costs -225	-200	-150	-100	-50	0	0	0	0	0	0	0	0
profit per quarter (earnings)				=revenues - expenses 25	50	69	56	44	31	0	0	0	0	0	0	0
appropriation of earnings				=f(cash, minimaler Bestand) -170					-398							-31
					revenu: fast and firm reaction needed				revenu: fast and firm reaction needed				revenu: fast and firm reaction needed			
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	180	180	180	180	0	0	0	0	0	0	0	0
cash			325	350	230	298	355	398	31	31	31	31	0	0	0	0
cash + work in progress + debtors				=Σ 350	230	298	355	398	31	31	31	31	0	0	0	0
cash + work i.p. + deb. + worklist				=Σ 600	448	455	448	430	31	31	31	31	0	0	0	0

Closure without delay



quarters	year X-1				year X				year X+1				year X+2			
	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]	400	400	400	400	400	400	400	400	50	0	0	0	0	0	0	0
full time jobs	100	100	100	100	75	50	25	0	0	0	0	0	0	0	0	0
ideal workload																
outstanding receivables	all data in [kchf]				all data in [kchf]				all data in [kchf]				all data in [kchf]			
worklist		250	250	250	188	125	63	0	0	0	0	0	0	0	0	0
worklist = contracts existing, work not done yet			delay 1 quarter											delay 1 quarter		
work in progress + debtors			250	250	250	188	125	63	0	0	0	0	0	0	0	0
				delay 1 quarter	work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet						delay 1 quarter	
input and output (cash flow)	all data in [kchf]				all data in [kchf]				all data in [kchf]				all data in [kchf]			
revenues				250	250	250	188	125	63	0	0	0	0	0	0	0
(planned) annual sales				1'000	1'000	1'000	1'000	1'000	0	0	0	0	0	0	0	0
variable costs: salaries				-200	-200	-200	-200	-200	-25	0	0	0	0	0	0	0
fixed costs: rent a.o.				-25	-25	-25	-25	-25	0	0	0	0	0	0	0	0
expenses				-225	-225	-225	-225	-225	-25	0	0	0	0	0	0	0
profit per quarter (earnings)				25	25	25	-37.5	-100	37.5	0	0	0	0	0	0	0
appropriation of earnings				-100	-100	-100	-100	-100	-163	0	0	0	0	0	0	0
balance	all data in [kchf]				all data in [kchf]				all data in [kchf]				all data in [kchf]			
minimum cash = 25 % of planned annual sales*				250	250	250	250	250	0	0	0	0	0	0	0	0
cash			325	350	275	300	262.5	162.5	37.5	37.5	37.5	37.5	0	0	0	0
cash + work in progress + debtors				600	525	487.5	387.5	225	37.5	37.5	37.5	37.5	0	0	0	0
cash + work i.p. + deb. + worklist				850	712.5	612.5	450	225	37.5	37.5	37.5	37.5	0	0	0	0

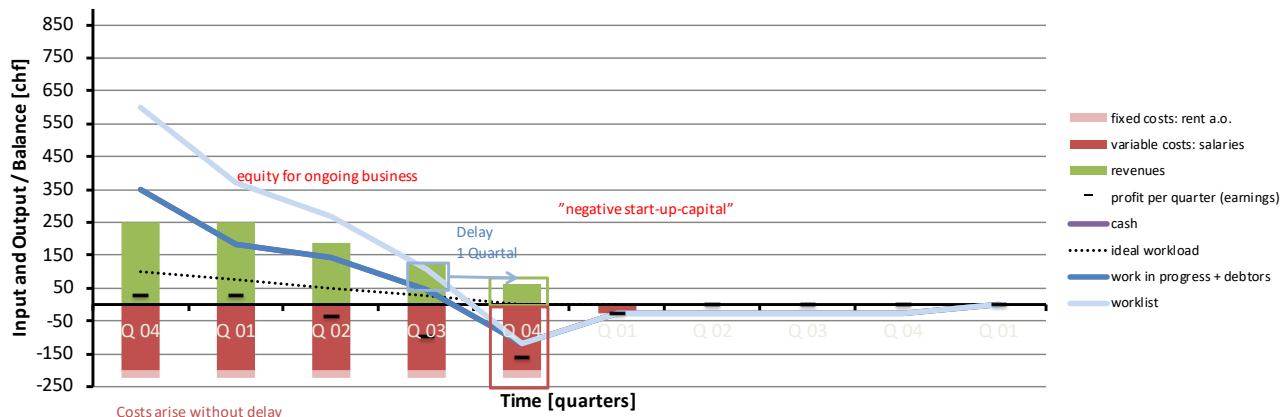
Size of enterprise: Downsizing from 100 to 0 % "emergency brake"



Closure due to serious trouble with delay

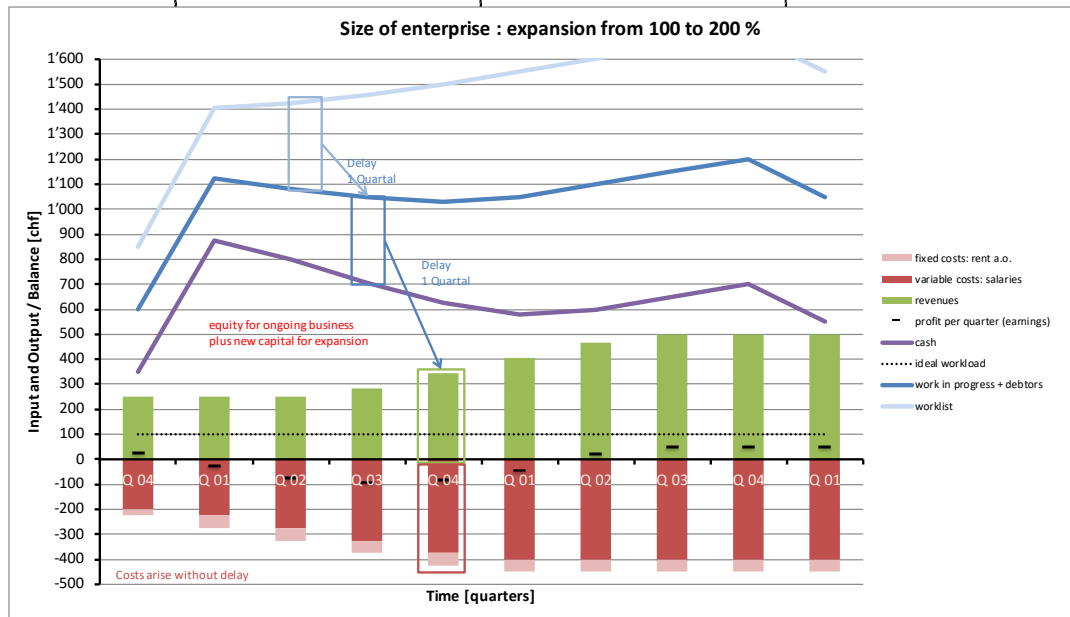
quarters	year X-1				year X				year X+1				year X+2			
	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]	400	400	400	400	400	400	400	400	50	0	0	0	0	0	0	0
full time jobs	100	100	100	100	75	50	25	0	0	0	0	0	0	0	0	0
ideal workload																
outstanding receivables	all data in [kchf]															
worklist			250	250	188	125	63	0	0	0	0	0	0	0	0	0
worklist = contracts existing, work not done yet																
work in progress + debtors			0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arbeiten werden sofort in Rechnung gestellt und bezahlt (Prinzip Barzahlung bei Coiffeur)																
input and output (cash flow)	all data in [kchf]															
revenues			250	250	250	188	125	63	0	0	0	0	0	0	0	0
annual sales					1000	625	625	625	0	0	0	0	0	0	0	0
variable costs: salaries					-200	-200	-200	-200	-25	0	0	0	0	0	0	0
fixed costs: rent a.o.					-25	-25	-25	-25	0	0	0	0	0	0	0	0
expenses					-225	-225	-225	-225	-25	0	0	0	0	0	0	0
profit per quarter (earnings)					25	25	-38	-100	-25	0	0	0	0	0	0	0
appropriation of earnings					-194				119				25			
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	156	156	156	156	0	0	0	0	0	0	0	0
cash			325	350	181	144	44	-119	-25	-25	-25	-25	0	0	0	0
cash + work in progress + debtors					181	144	44	-119	-25	-25	-25	-25	0	0	0	0
cash + work i.p. + deb. + worklist					369	269	106	-119	-25	-25	-25	-25	0	0	0	0

Size of enterprise : Downsizing from 100 to 0 % "emergency brake"



Closure due to serious trouble without delay

	year X-1				year X				year X+1				year X+2			
	business as usual	business as usual	business as usual	business as usual	expansion	expansion	expansion	expansion	expansion	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual
quarters	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]																
full time jobs	400	400	400	400	450	550	650	750	800	800	800	800	800	800	800	800
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]															
worklist		250		250	281	344	406	469	500	500	500	500	500			500
worklist = contracts existing, work not done yet				delay 1 quarter												delay 1 quarter
work in progress + debtors				250	250	281	344	406	469	500	500	500	500	500		500
				delay 1 quarter	work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							delay 1 quarter
input and output (cash flow)	all data in [kchf]															
revenues				250	250	250	281	344	406	469	500	500	500			500
(planned) annual sales	=f(revenues)			1000	2000	2000	2000	2000	2000	2000	2000	2000	2000			2000
variable costs: salaries	=f(no. of employees, work load)			-200	-225	-275	-325	-375	-400	-400	-400	-400	-400			-400
fixed costs: rent a.o.	increase!			-25	-50	-50	-50	-50	-50	-50	-50	-50	-50			-50
expenses	=Σ variable + fixed costs			-225	-275	-325	-375	-425	-450	-450	-450	-450	-450			-450
profit per quarter (earnings)	=revenues - expenses			25	-25	-75	-94	-81	-44	19	50	50	50			50
appropriation of earnings	=f(cash, minimaler Bestand)				0				0				-200			
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*					500	500	500	500	500	500	500	500	500			500
cash				325	350	875	800	706	625	581	600	650	700			550
cash + work in progress + debtors	=Σ			600	1125	1081	1050	1031	1050	1100	1150	1200	1050			1050
cash + work i.p. + deb. + worklist	=Σ			850	1406	1425	1456	1500	1550	1600	1650	1700	1550			1550

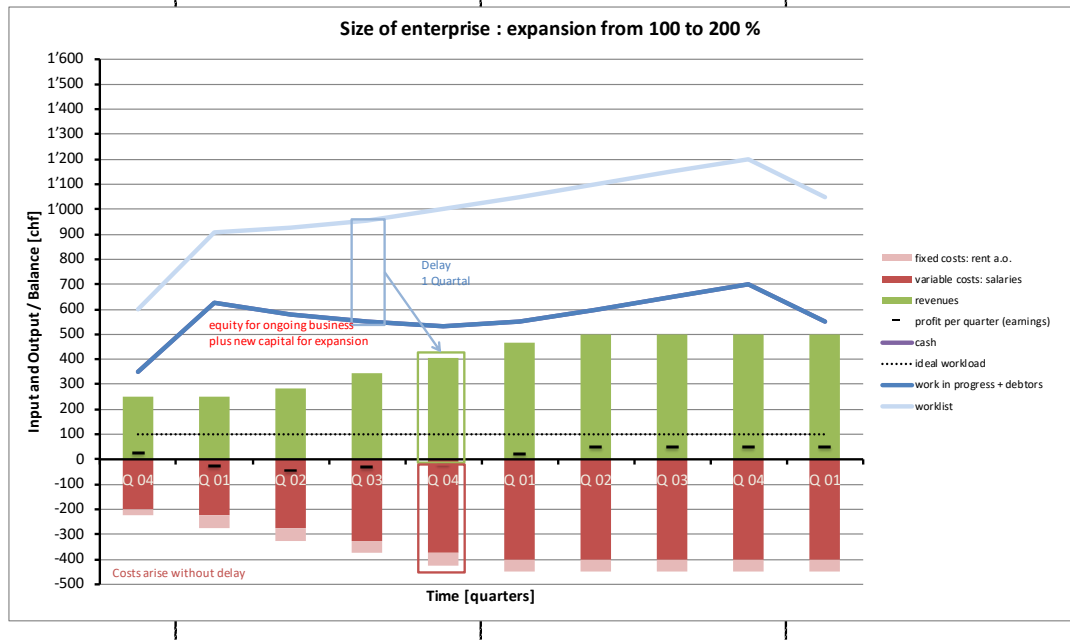


	year X-1				year X				year X+1				year X+2			
	business as usual	business as usual	business as usual	business as usual	expansion	expansion	expansion	expansion	expansion	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual
quarters	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04
size of enterprise [%]																
full time jobs	400	400	400	400	450	550	650	750	800	800	800	800	800	800	800	800
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
outstanding receivables	all data in [kchf]															
worklist		250		250	281	344	406	469	500	500	500	500	500	500	500	500
worklist = contracts existing, work not done yet																
work in progress + debtors		0		0	0	0	0	0	0	0	0	0	0	0	0	0
					work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet				work commenced plus debtors are converted into cash immediately			
input and output (cash flow)	all data in [kchf]															
revenues				250	250	281	344	406	469	500	500	500	500	500	500	500
(planned) annual sales	=f(revenues)			1000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
variable costs: salaries	=f(no. of employees, work load)			-200	-225	-275	-325	-375	-400	-400	-400	-400	-400	-400	-400	-400
fixed costs: rent a.o.	increase!			-25	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50
expenses	=Σ variable + fixed costs			-225	-275	-325	-375	-425	-450	-450	-450	-450	-450	-450	-450	-450
profit per quarter (earnings)	=revenues - expenses			25	-25	-44	-31	-19	19	50	50	50	50	50	50	50
appropriation of earnings	=f(cash, minimaler Bestand)				150				119				-169			
balance	all data in [kchf]															
minimum cash = 25 % of planned annual sales*				250	500	500	500	500	500	500	500	500	500	500	500	500
cash				325	350	475	431	400	381	519	569	619	669	669	669	669
cash + work in progress + debtors	=Σ			350	475	431	400	381	519	569	619	669	669	669	669	669
cash + work i.p. + deb. + worklist	=Σ			600	756	775	806	850	1019	1069	1119	1169	1169	1169	1169	1169

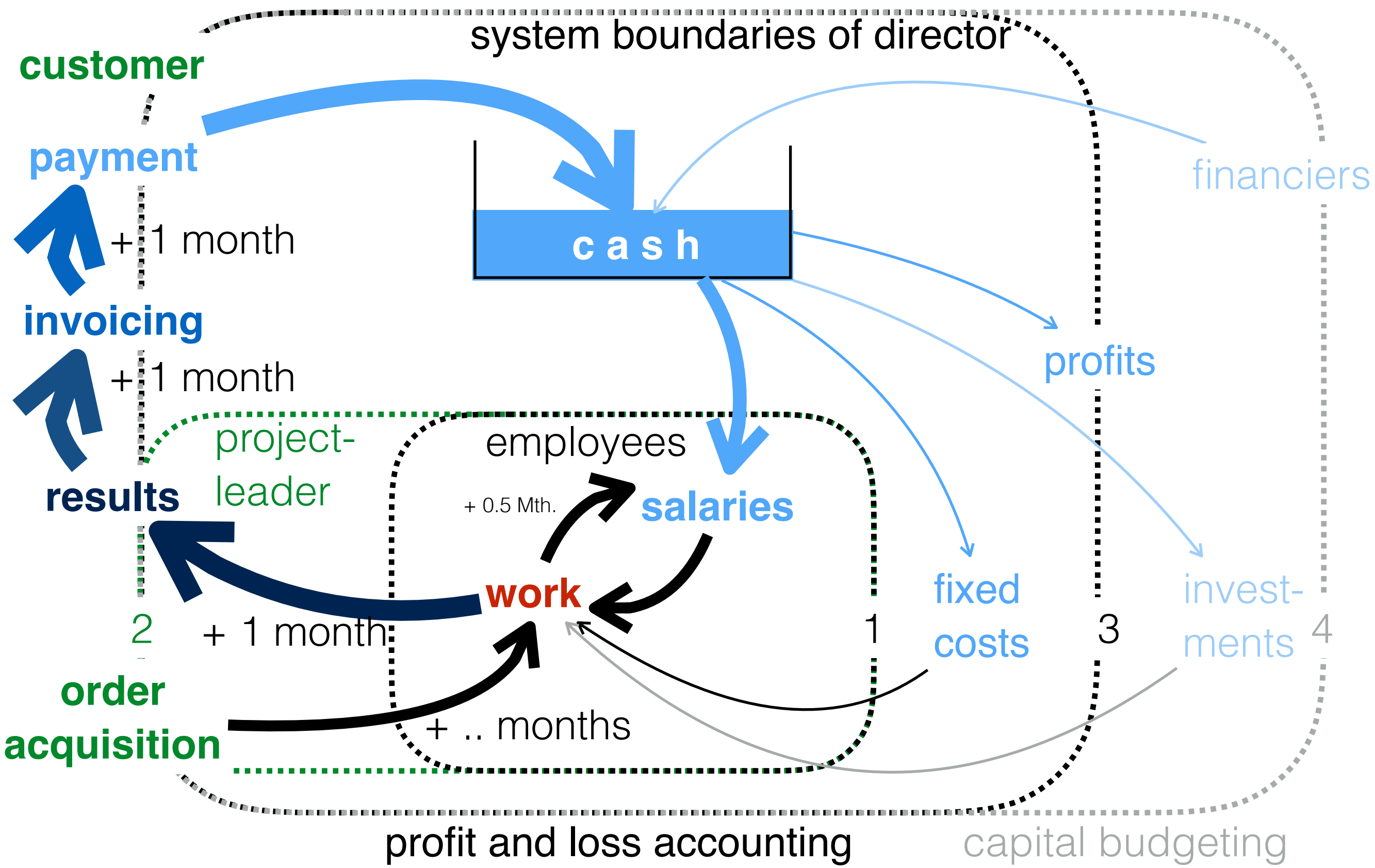


Expansion without delay

	year X-1				year X				year X+1				year X+2				
	business as usual	business as usual	business as usual	business as usual	expansion	expansion	expansion	expansion	expansion	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	business as usual	
quarters	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	Q 01	Q 02	Q 03	Q 04	
size of enterprise [%]																	
full time jobs	400	400	400	400	450	550	650	750	800	800	800	800	800	800	800	800	
ideal workload	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
outstanding receivables	all data in [kchf]																
worklist		250		250	281	344	406	469	500	500	500	500	500			500	
worklist = contracts existing, work not done yet				delay 1 quarter												delay 1 quarter	
work in progress + debtors	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
					work in progress this means work performed, not yet invoiced				debtors = invoices sent to costumers but not paid yet							work commenced plus debtors are converted into cash immediately	
input and output (cash flow)	all data in [kchf]																
revenues		250		250	250	281	344	406	469	500	500	500	500			500	
(planned) annual sales	=f(revenues)	1000		1000	2000	2000	2000	2000	2000	2000	2000	2000	2000			2000	
variable costs: salaries	=f(no. of employees, work load)		-200		-200	-225	-275	-325	-375	-400	-400	-400	-400	-400			-400
fixed costs: rent a.o.	increase!		-25		-50	-50	-50	-50	-50	-50	-50	-50	-50	-50			-50
expenses	=Σ variable + fixed costs		-225		-275	-325	-375	-425	-450	-450	-450	-450	-450	-450			-450
profit per quarter (earnings)	=revenues - expenses		25		25	-25	-44	-31	-19	19	50	50	50	50			50
appropriation of earnings	=f(cash, minimaler Bestand)				0	0	0	0	0	0	0	0	0	-200			-200
balance	all data in [kchf]																
minimum cash = 25 % of planned annual sales*				250	500	500	500	500	500	500	500	500	500			500	
cash			325	350	625	581	550	531	550	600	650	700	550			550	
cash + work in progress + debtors	=Σ		350	350	625	581	550	531	550	600	650	700	550			550	
cash + work i.p. + deb. + worklist	=Σ		600	600	906	925	956	1000	1050	1100	1150	1200	1050			1050	



Expansion without delay



system boundaries of director

customer

payment

+1 month

invoicing

+1 month

results

project-leader

employees

+ 0.5 Mth.

salaries

work

+ 1 month

order acquisition

+ .. months

profits

financiers

fixed costs

investments

profit and loss accounting

capital budgeting