



Nordic Defence Cooperation savings potential with respect to materiel

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NORDEFKO

- Nordic Defence Co-operation (NORDEFKO) was established in 2009 but has history from the 1990s
- The main driver was economic: the shrinking budgets, rising costs and international missions (Saxi, 2011)
- An analysis of Finnish defence ministers' 54 speeches shows that cost-efficiency is the most often cited argument for Finland's interests in NORDEFKO.
- "The desired end result must be greater effect – either operational or economic" (Søreide, 2014).
- Decisions on how to co-operate and with whom should be rooted in a rigorous cost and benefit analysis (Valášek, 2011).





Paper objective

- Figures provided by NORDEFECO estimate 100 M€ cost savings in common development, purchasing and maintenance of defence materiel during a fifteen-year period.
- Per year it is a rather insignificant 1.67 M€ per country.
- There has been a gap between the rhetoric and concrete action and in order to achieve impact, Nordic co-operation would require difficult political choices (Bertelman and Anclair, 2013).
- Could Nordic defence co-operation bring substantial economic benefits and if so, where could they be found?
- Focus in materiel co-operation including both procurement and life-cycle support; the area that in NORDEFECO is called armaments co-operation.





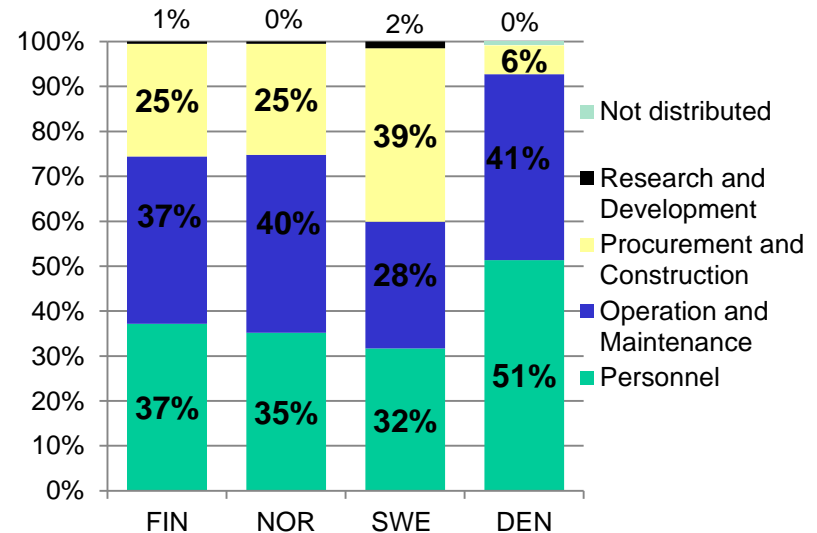
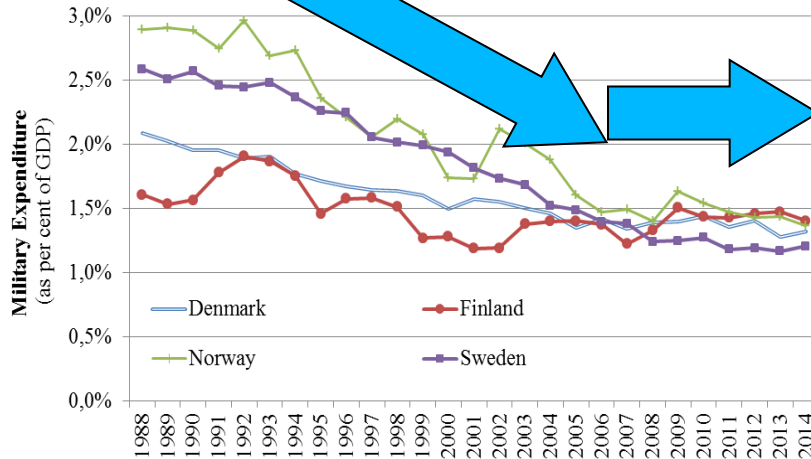
Nordic Countries Defence Tasks

- DEN and NOR in NATO -> collective defence.
- FIN and SWE both in EU and EDA -> non-aligned countries.
- Defence forces tasks of territorial defence and surveillance, assisting civilian authorities and international crisis management are shared by all four countries but emphasis is different.
- According to Saxi (2011, p. 70)
 - Denmark's threats are de-territorialised and could come from anywhere, but typically far away.
 - Sweden shares the above, with a caveat for Russian power in the Baltic Sea.
 - Norway: High North region and Russia, but also employ resources to deal with global challenges and threats.
 - Finland is concerned with its shared border with Russia.





Resources for the tasks



Defence spending breakdown in 2013 from UN Milex.

- Defence spending has decreased since the cold war except in Finland
- At a standstill during the last decade.
- In absolute terms, Sweden spends the most and in Finland the least, being 46% of that of Sweden
- Except Denmark, Nordic countries have higher acquisition volume and lower personnel costs than European countries (20 %, 50%)
- There's just a little R&D and defence industrial base is small, except in Sweden -> little defence material trade between Nordics.





Co-operation Savings in Theory

- Economies of scale: Arena et al. (2006) estimate cost reduction of 10% for a doubling of production volume for US Navy ships.
- Economies of scope: having a fixed asset produce more, but different kinds of products and raising utilization.
- Experience curve: learning effects through cumulative volume. Hartley (2008) estimates 10-15 % unit cost decrease in modern combat aircraft for every doubling of production volume.
- These savings take place at production. But Nordics don't have much of a defence industry (except Sweden), and are mainly buyers.
- That changes the calculation, as Nordic volumes even together are insignificant for e.g. US manufacturer and savings of cooperation become also insignificant.
- Also, the division of gains between buyer and manufacturer is a matter of negotiation.





Co-operation savings in Defence

- EDA Pooling & Sharing, NATO Smart Defence.
- The Ghent initiative (2010) “*By bundling national demand, potential savings could be realised through economies of scale.*”
- European armaments co-operation began in the 1950s. There has been 59 collaborative defence procurement programmes. (Heuninckx, 2008)
- Co-operation and specialisation benefits will come at the price of reduced national autonomy. Tendency to make national versions of equipment in collaborative projects, to produce in fact national versions of the equipment. (Gierich & Nicoll, 2012).
- Europe has six times the number of weapon systems that the US has and consolidating procurement would make batch sizes 2.5 times larger which would save up to 30% (McKinsey, 2013).





A comparison of Acquisition plans

- Sweden and Norway publicise their acquisition plans for the future.
- Finland and Denmark do not, but there are some statements at least about major items.
- When comparing the lists of future acquisition plans, there aren't very many similarities in the lists. Here are some highlights
 - Finland and Sweden both plan for surface combatants around 2020, but Norway's coast guard and Denmark Knud Rasmussen-class patrol vessel are already different.
 - Sweden and Norway both plan for future submarines, but co-operation looks challenging.
 - Leopard MBT tanks will be upgraded both in Norway and Sweden, and as Finland also is a user.
 - Denmark lists both artillery and APCs as future purchases in its defence agreement while Norway's FAF includes as a major item an infantry fighting vehicle (CV90) and artillery. In Sweden, major purchases for the Army include the Archer artillery system and an upgrade of the CV90. But Norway pulled out of Archer, Denmark purchased Piranha and cancelled self-propelled artillery plans.





Procurement Savings Potential

Savings potential calculation	FIN	NOR	SWE	DEN	Total	Percent
Military Expenses 2013 M€	2,459	5,390	4,639	3,182	15,671	100%
Of which Procurement and Construction	615	1,334	1,790	205	3,944	25%
Co-operation share 20%	123	267	358	41	789	5.0%
Co-operation savings 10%	12	27	36	4	79	0.5%
-"- savings 20%	25	53	72	8	158	1.0%
-"- savings 30%	37	80	107	12	237	1.5%

- Above is an assessment of possible savings in purchasing
- Comparing national acquisition plans appears unable to produce savings that would make a significant difference at national defence budget level.





Communality in Military Equipment

- The operations and maintenance costs were a major defence spending category.
- Maintenance could also offer savings through co-operation due to economies of scale (e.g. facilities & equipment, spares purchasing, workforce specialisation) and learning.
- The economies of maintenance co-operation or centralisation are not easy to assess, because there are many ways to realise co-operation (e.g. centralised facility or moving labour team) and different types of maintenance operations for different platform subsystems.
- However, as same equipment is needed for realising these opportunities, the amount of common equipment was checked.





Example: Military Vehicles

	FIN	NOR	SWE	DEN	Common
MBT	LEO 2A4 (100)	LEO 2A4 (52)	LEO 2A4 (12); 2A5 (120)	LEO 2A4/5 (55)	339/339
AIFV	CV90 (102); BMP-2 (110)	CV9030N (104)	CV9040 (354)	CV9030 (45)	605/715
APC (track)	MT-Lbu (40); MT-LBV (102)	M113 (315)	Pbv 302 (194); BvS10 MkII (48)	M113 (343)	658/1046
APC (wheel)	XA-180 (260); 202/3 (149); 360 (62)	XA-186 (75)	XA-180 (23); 202/3 (137); 360 (1)	Piranha III (111)	707/818
Recon	BMP-1TJ (34)	Fuchs		Eagle I (22); IV (91)	0/147
PPV		Dingo II (20)	RG-32M (260)	Cougar (40)	0/320

Source: Military Balance 2014





Weighted commonality

- Pugh (2012) provides data that enables the median cost to be calculated for various kinds of new military equipment.
- His values were used without regard to ISD and weight to weigh the different equipment types, e.g. MBT and APC. So weighing is done by Pugh's estimate of repurchase value of new equipment.

M€	FIN	NOR	SWE	DEN	Total	Common	Share
Vehicles	2,084	921	2,295	862	6,161	5,200	84%
Aircraft	5,685	4,466	11,544	3,496	25,191	8,054	32%
Helicopters	373	1,519	324	821	3,036	1,367	45%
Artillery	838	135	107	193	1,277	453	35%

- Land equipment has highest commonality.
- Aircraft has by far the largest (repurchase) total value and therefore savings potential.





Conclusions

- Independent defence planning systems based on national needs do not produce a significant amount of the same capability need within the same time-window and therefore opportunity for co-operation is likely to remain rather small.
- The sources of cost savings in MOTS procurement prevalent in Nordic countries also are different and smaller than in the R&D-based collaborative development of the major EU countries.
- For maintenance, where significant savings assume the same platforms, the differences between the Nordic countries to limit the scope of savings, the exception being land vehicles.
- This does not mean that individual projects should not be pursued whenever there are savings to be found, but only that the overall gain appears to be rather limited.





Final thoughts

In a 2012 Skagen meeting, Nordic defence ministers also discussed potential co-operation areas where in the short term,

“airspace surveillance, procurement of small arms ammunition, tugboats, armored vehicles rubber tracks, batteries and unit group rations provide good opportunities for positive results”

(DDF, 2012).

