Developing a Management Accounting System for Small and Micro Firms: An Integrated Approach

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***Abstract*:** *More than ever, in a globalized and dynamic market, a precise knowledge of production costs is vital to be successful. Nonetheless, the use of Management Accounting System (MAS) in micro and small firms is still rare; an issue that is not negligible, since these firms represent the cornerstone of the European economy. Aiming to solve the problem, we propose a novel MAS, which follows and extends the Patrimonial approach introduced by Besta and refined by De Dominicis in the late '60s. The proposed MAS allows tracing production costs even in complex manufacturing systems, it is entirely organized in double entry bookkeeping and it is totally integrated with the financial accounting system required by law. Thus, it can be introduced in a short time and at a low cost, without overturning the operating procedures followed by the accountant of a small-micro firm*

Keywords: *Double entry bookkeeping; Management Accounting System; Patrimonial approach.*

1. Introduction

Small and Medium Enterprises (SMEs) represent the cornerstone of the European economy. Specifically, in Italy, small and micro firms (i.e., units with less than 50 and 10 employees, respectively) contribute more to employment and value-added than elsewhere in the EU: nearly half of total employment and one-third of value added [1, 2]. Quite surprisingly, in spite of their economical relevance, micro and small firms that have fully implemented a Management Accounting System (MAS) are still rare. This is a critical problem, since nowadays, more than ever, a precise knowledge of production costs is vital to be successful.

Explaining the low attitude toward the introduction of MAS is not easy, but certainly, a reason can be found in its *patrimonial structure*, which strongly differs from that of a Financial Accounting System in the European version (EFAS), which, conversely, is based on the *income approach*. More precisely:

- In order to record all the industrial costs of the items that are being manufactured, MAS uses WIP Accounts (WIP is the acronym of Work In Process), whereas these accounts are excluded by EFAS;
- Most of the current versions of MAS assign to the Inventory of Raw Materials and of Semi-finished products, a role which is completely different from that of EFAS. Whereas in EFAS both Accounts are open and closed only at the beginning and at the end of the year, in MAS they are continuously updated;
- In MAS, purchases of input materials are made by operating directly upon Inventory Accounts; conversely, in EFAS these transactions are entered by means of Purchase Accounts. Also, in MAS, since purchases are entered using Inventory Accounts, quotas of materials and/or of semi-finished goods (used during the productive process) are closed in WIP.

To better clarify this crucial point, following Burch [3], let us consider the purchase and, later, the use of raw materials and/or of semi-finished goods. To properly treat this case, in MAS, the double bookkeeping entries of Table I must be made. Entries (1), (2) and (4), which do not have an equivalent in EFAS, clearly demonstrate how the same transactions may be treated in a totally different way by MAS and EFAS. Also note how, in EFAS, the purchase of raw materials is entered using both a stock account such as *"Cash"* and a flow account such as *"Purchase of Raw Materials"*, whereas in the MAS of Table I, the same entry is made by operating upon two stocks accounts which are *"Cash"* and *"Raw Materials Inventory"*, respectively.

The complete different structure of the two accounting models makes their integration hard, if not even impossible. Thus, most of the times MAS and EFAS operate independently and reconciling the information content supplied by each one of them may be challenging. A lack of coherence it is likely to occur, and this

represents a powerful hindrance to the adoption of MAS in small and, especially, in micro firms. Indeed, the use of MAS may result rather cumbersome for an accountant who is accustomed to operate on EFAS, unless he or she has a strong background in industrial management. This difficulty might be resolved hiring a specialized employee, or paying for the services of an external consultant, but either choice, jointly to the installation costs of an accounting system, clashes with financial constraints of small/micro firms with limited financial capacities.

TABLE I: Double bookkeeping entries in MAS

(1)	*Raw Materials Inventory*	*to*	*Cash*
(2)	*WIP*	*to*	*Raw Material Inventory (for the used amount only)*
(3)	*Services Cost*	*to*	*Cash*
(4)	*Cost of Product*	*to*	*WIP*
Lastly, the variation of the inventory, with respect to the initial situation, is closed in the Profit & Loss Account			

To solve these criticalities, we propose using a novel MAS that is entirely organized in double entry bookkeeping and is perfectly integrated with financial accounting. The proposed MAS is based on the patrimonial approach and readapts, to a modern manufacturing firm, the Single Integrated System developed by De Dominicis' in the '60s [4]. As we will see, the formal coherence and the full integration of the system proposed by De Dominicis are assured by some supplementary accounts, referring to the variations of the inventories. Although this is not the only solution to develop a perfectly integrated system, our belief is that the addition of these accounts is the best and perhaps sole way to assure a perfect and formal coherence between MAS and EFAS. Aiming to better clarify this crucial point, we will briefly discuss in Section 2 how the integration requirement have been faced by other scholars. Next, in Section 3 and 4, two case studies will be used to show the basic functioning and the potentialities of the novel integrated system. Lastly, conclusions and suggestions for future research will be drawn in Section 5.

2. The Integration between Financial and Cost Accounting in the 20th Century

The need to integrate financial and management accounting in a unique and fully coherent system has been neatly faced by all the Patrimonial School of accounting. The cornerstone version of the patrimonial approach was supplied by Fabio Besta [5, 6], whose main intent was to produce a double entry bookkeeping accounting model, capable to register not only the *internal* transactions but also the *external* ones. Whereas the first class concerns financial flows, exchange of goods and services between the firm and external entities, the second one includes those transactions taking place within the firm, which, as such, represent the object of cost accounting. More specifically, internal transactions are:

- Storage of raw materials, semi-finished and finished goods in their warehouses;
- Withdrawals from the same warehouses, due to productive activities and/or sales;
- Accounting entries concerning the composition of the structure of industrial costs.

We also note that Besta [6] proposed *"to observe and to describe transactions mainly in terms of variations of the Assets and, secondarily as variations of the Equity, which summarizes Assets jointly and abstractly"*. Accordingly, the chart of accounts can be broadly split into *elementary* and *derived* accounts, respectively. Elementary accounts refer to fixed assets, inventories and other current assets, with the decisive exclusion of equity; all the other accounts are classified as derived ones.

Later on, the system of Besta was refined by De Dominicis [4], who introduced a couples of Accounts - one of stocks and the other of flows (relating to materials, semi-finished and finished products), so as to give a formal coherence to the integrated system. A partial anticipation of De Dominicis's system was also supplied by Schmalenbach, a synthesis of which can be found in [6]. In spite of the important contributions of these scholars, the fortune of the Patrimonial tradition was short enough, both in Italy and in Continental Europe. Besta's pupil, Gino Zappa [6], conceived a different system, the well-known *Income System*, whose aim was to register exclusively the internal transactions, with the neat exclusion of all the external ones. In a relatively short span of time, the income approach replaced the patrimonial one, as demonstrated by the paucity of accounting models (used in continental Europe) that integrate financial and management accounting. Trying to explain why the acceptance of the income system was so fast and pervasive is a fascinating, but demanding task. Surely, a rapid growth of the manufacturing industry and the contemporary lack of information technology were decisive

factors of Zappa's success. Management of manufacturing firm involves, in fact, a far wider chart of accounts than that needed by agricultural farms and so, a system that simplifies bookkeeping resulted particularly attractive; also the need of a precise assessment of the generated income and the continue variations in the assets were decisive issues that led to the adoption of the income system.

Nonetheless, both in the USA and in the UK, the patrimonial approach remained alive and it was developed in a proper and original way. The Patrimonial Approach in the American Version (PAAV) is well explained in different texts [7, 8, 9] and an interesting example, concerning the production of pipes, can be found in the work by Anthony and Hekimian [10]. For instance, in the integrated version proposed by Fanni and Cossar [11], the integration is obtained using the double bookkeeping entries of Table II.

TABLE II: Main transactions in an integrated PAAV, readapted from [10]

A. Purchase of inputs		
Materials	*to*	*Cash*
Plants	*to*	*Cash*
Services Costs	*to*	*Cash*
B. Production		
Whole Costs	*to*	*Different Costs (Materials, Depreciations, Services Costs)*
WIP	*to*	*Whole Costs*
Finished Products	*to*	*WIP*
C. Sales		
Cash	*to*	*Sales*
Cost of Sales	*to*	*Finished Products*

It is crucial to observe that, as it is the case of the MAS of Table I, purchase of materials is entered using two stocks accounts that are, respectively, *"Materials"* and *"Cash"*. The same entry is traceable also in Besta's system, from which PAAV derives directly. Also note that the above system is divided in three parts: (A) Purchases, (B) Production and (C) Sales. More precisely, purchases of material, plant/equipment and services are made by cash. Production costs are registered by debiting the WIP account of Depreciation, Services and Materials. In turn, WIP's settlement is subsequently debited in Finished Products. Lastly, Sales are made in Cash and Finished Products are debited to Cost of Sales.

Also, as clearly shown by section B., the PAAV is characterized by a frequent interchange of flows and stocks accounts i.e., Costs are closed in WIP, which, in turn, is closed in Finished Products. This peculiarity has two important and relevant consequences. The first one is the full integration of PAAV; the second one is its direct coherence with a MAS, provided that it has the same structure of the one shown above. However, on the other one side, this feature can be considered a sort of criticality in Continental Europe; indeed a frequent interchange of flows and stocks accounts may result unsuitable, for a bookkeeper trained on EFAS, who has not a strong background on management accounting principles. Thus, in virtue of what we have mentioned in the Introduction Section, the PAAV can be considered hardly suitable for small and micro firms.

3. The Novel Integrated MAS: Basic Elements

We will start showing a micro system, concerning a firm producing one good by means of a single input. The initial situation of the firm is shown by Fig. 1, and the following transactions will be considered:

- Purchase of € 20,000 of raw materials;
- Production of finished goods with € 60,000 of raw materials and € 20,000 of direct labor;
- Sale of € 75,000 of finished goods at a price of € 100,000;
- VAT and taxations are not considered.

Balance Sheet (0)			
Cash	30,000		
Raw Materials	50,000	370,000	Other liabilities
Finished Goods	40,000	150,000	Equity
Other assets	400,000		

Fig. 1: The initial balance sheet

The above transactions correspond to the entries of the accounting diary of Table III and are visually shown by Fig. 2, where the initial state and the settlement of the accounts are highlighted in blue and red, respectively.

TABLE III: Accounting diary

Entry		Account Name		Debit	Credit
(1) Purchase of input material	(1)	Purchases to		20,000	
			Cash		20,000
	(1')	Raw Mat. Inventory to		20,000	
			Raw Mat. Inv. Variation		20,000
(2) Production launch of one lot of finished products	(2)	Raw Mat. Inv. Variation to		60,000	
			Raw Mat. Inventory		60,000
	(2')	WIP to		20,000	
			Purchase		20,000
	(2")	WIP to		40,000	
			Raw Mat. Inv. Variation		40,000
	(2"')	WIP to		20,000	
			Wages expense		20,000
(3) Payment of labour	(3)	Wages expense to	Cash	20,000	20,000
(4) End of production lot	(4)	Profit & Loss Statement to		80,000	
			WIP		80,000
	(4')	Finished goods Inventory to		80,000	
			Fin. Goods Inv. Variation		80,000
(5) Sales of finished goods	(5)	Cash to		100,000	
			Sales		100,000
	(5')	Fin. Goods Inv. Variation to		75,000	
			Finished goods Inventory		75,000

Inventory accounts are updated anytime internal or external transactions impact on inventory levels, as in the case of purchase of raw materials and/or sale of finished goods (transaction 1 and 5 in Table III). However, a peculiarity of our approach is the fact that this registration is not made, as in PAAV, with a single bookkeeping entry (i.e., *Material to Cash*). Instead, we use two double bookkeeping entries that rely on the Inventory Variations Accounts, as it is typically done in a patrimonial approach. For instance, when inputs are purchased (entry 1 and 1') we write: *"Purchases to Cash € 20,000"* and *"Raw Mat. Inventory to Raw Mat. Inventory Variations € 20,000"*. The first entry signals that € 20,000 of materials were purchased by cash and, de facto, it is identical to the entry that would have been used in the income approach. The second and original entry signals that and equal amount of materials has entered in the warehouse. More specifically, entry of the type "*Inventory to Inventory Variations"* are needed to keep track of the inventories' levels and of their variations in time, but also to assure the full integration and the formal coherence of the accounting system. Indeed these accounts avoid the continuous interchange of flows and stocks accounts, a fact that, instead, is very common in PAAV.

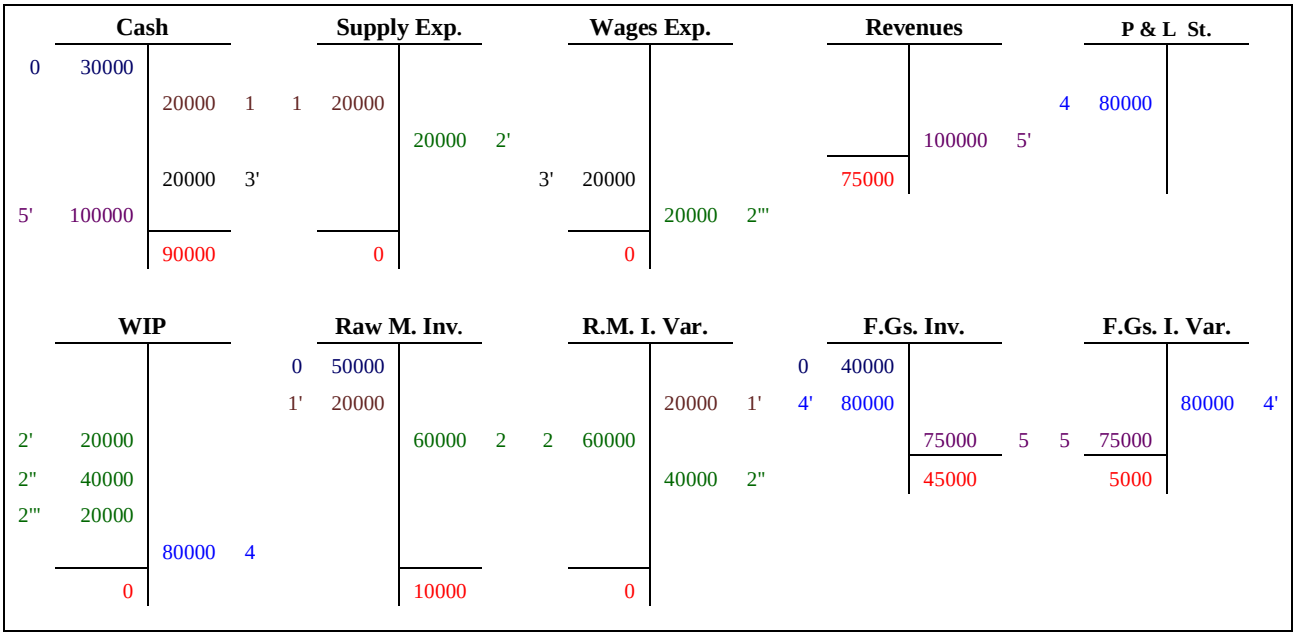

Fig. 2: The main double bookkeeping entries

Entries related to the beginning and to the end of a production cycle deserve some further comments. At first, in order to signal that input materials have been withdrawn from the warehouse to feed production (entries 2 to 2'''), inventory accounts are updated with the following entry: *"Raw Materials Inv. Variations to Raw Materials Inv. € 60,000"*. Next, since materials are used for a new production lot, the accounting system correctly registers the industrial costs in the following way:

- Purchases are closed in WIP i.e., *"Purchases to WIP € 20,000"*
- Raw Materials Inventory Variations are closed in WIP i.e., *"Raw Mat. Inv. Variations to WIP € 40,000"*

Note that the latter entry is a sort of adjusting entry, needed to rectify the industrial costs debited to the WIP account. Specifically, in the above example, the right amount of industrial costs equals € 60,000, a sum that is obtained by adding to € 20,000 of purchases, the passive settlement of € 40,000 of the Raw Materials Inventory Variations account. Also note that, if € 15,000 instead of € 60,000 were used, there would have been an active settlement of € 5,000 in the Raw Materials Inventory Variations account and, consequently the WIP account would have been credited by € 5,000. This is clearly displayed by Fig. 3.

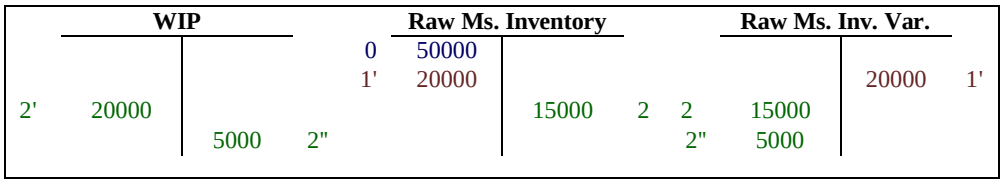

Fig. 3: An example of adjusting entry, in case of materials purchased but not used

The entries that are needed to record the production of a lot terminate by debiting the WIP account of all the other industrial costs (wages, energies, etc.). In the above example, without loss of generality, we only considered "wages" and so the following entry was made: *"WIP to Wages Expenses € 20,000"*. Lastly, when the lot has been completed (entry 4 and 4'), the finished goods inventory level is increased and the WIP account is closed in the Profit & Loss Statement, so as to correctly register all the incurred industrial costs. More precisely, the following entries are made: *"P&L Statement to WIP € 80,000"* and *"Finished Goods Inventory to Finished Goods Inventory Variations € 80,000"*.

Synthesizing we can say that the key elements of the system's functioning are the following ones:

- Accounts relative to purchase of materials are closed in WIP;

- WIP is closed in the Profit & Lost Statement;
- Inventory Variations are closed in WIP.

Concerning the last point, it is important to stress that Inventory Variations must be closed in WIP at the beginning of a production cycle (i.e., immediately after Purchases are debited in WIP, as in entry 2") and also at the end of the production cycle (i.e., just before WIP is closed in the Profit & Loss Statement), so as to correctly rectify the industrial costs debited to WIP. Note that, in the example of Fig. 2, at least apparently, there is no trace of this second entry; this is because, when the WIP account was closed in the Profit & Loss Statement (entry 4), the settlement of the Raw Materials Inventory Variation was null. To better clarify this point, an extended example will be provided in Section 3.

To conclude we observe that, thanks to the integrated architecture of the system, computing the Profit & Lost Statement and the Balance Sheet is almost straightforward. Once the end settlement of each account has been computed, it is sufficient to close Inventories in the Balance Sheet and WIP in the Profit & Lost Statement. By proceeding in this way, results shown by Fig. 4 can be easily obtained.

P & L Statement					**Balance Sheet (1)**		
Production	80,000	100,000	Revenues	Cash	90,000		
Costs		5,000	Increase of	Raw Materials	10,000	370,000	Other
Net Profit	**25,000**		Fin. Goods.	Finished Goods	45,000		Liabilities
				Other assets	400,000	175,000	Equity

Fig. 4: The obtained P&L Statement and Balance Sheet

From this example, it is evident that both the integration and the formal coherence of the system are fully assured. In this respect, we can say that there are three basic features that negatively characterize a PAAV:

1. The absence of Variations Accounts that keep track of the variation of the inventory of both materials and finished goods;
2. Inventory accounts are directly closed in WIP, for their utilized quotas. Due to this passage, WIP accounts include both “flows” and “stocks” values; an issue that, as above mentioned, complicates the functioning of the system. The same interchange of flows and stocks takes place also for the Cost of Products - again a stock account- that is directly closed in the Profit & Loss Statement;
3. There is a palpable difference between the structure of the Profit & Loss Statement obtained with a PAAV and that required by the European Economic Community (EEC). This difference is mainly due to the need, in PAAV, to close the variations of materials, semi-finished and finished products directly in the costs section of the Profit & Loss Statement.

As shown in the example, all these problems have been fully resolved by our integrated system.

4. Further Insights of the Model

The strength of our system becomes evident in case of sequential and/or parallel production processes. In both cases the basic functioning does not change, but there is the need to enlarge the chart of accounts adding one Inventory Account, one Inventory Variations Account and one WIP Account, for each semi-finished good that is realized in the manufacturing process. In this way, thanks to the “Inventory - Inventory-Variations” accounts, the accounting system is able to provide complete and continuous information about the evolution of the whole manufacturing process. At the same time, WIP accounts provide information about the level and the composition of the industrial costs at each stage of the manufacturing process.

To better clarify this concept, a single input single output two-level sequential process will be considered. For instance, an industrial case of this kind could be that of a woolen mill where: *(i)* wool (the raw material) is span to obtain yarn (the semi-finished) and, next *(ii)* yarn is weaved to get fabric (the end product). Specifically, starting from the initial condition of Fig. 4, the following transactions will be considered:

- Sale of € 1,000 of fabric at a price of € 1,500;
- Production of a lot of fabric using € 1,400 of yarn stocked in the semi-finished goods warehouse, € 300 of direct labor and € 200 of energy;

- Production of a lot of yarn using € 800 of wool stocked in the raw materials warehouse, € 200 of direct labor and € 100 of energy;
- Purchase of € 2,000 of wool;
- Production of a second lot of yarn using € 800 of wool stocked in the raw materials warehouse, € 250 of direct labor and € 150 of energy;
- General Payments i.e., energy € 600 of, wages € 750, taxes paid in advance € 200, mortgage instalment € 10,100 (of which € 100 of interests), depreciation charge € 250, overheads € 350;
- Sale of € 1,800 of fabric at a price of € 2,500;
- Production of a second lot of yarn using € 700 of wool stocked in the raw materials warehouse, € 150 of direct labor and € 100 of energy.

	Balance Sheet (0)		
Cash	4,000	100,000	Debts
Wool	1,000	50,000	Depreciation fund
	2,500		
	4,000		
Assets	200,000	61,500	Equity

Fig. 5: The initial state of the woolen mill

All the entries and the closing entries, corresponding to the above mentioned transactions, are shown by Fig. 6. Note that, due to the sequential structure of the manufacturing process: *(i)* Purchases are closed in WIP of Yarn (entry 15'), *(ii)* WIP of Yarn is closed in WIP of Fabric (entry 13), *(iii)* WIP of Fabric is closed in the Profit & Loss Statement (entries 13 and 16').

Apart from that, the basic functioning of the system does not change; yet, it may be useful to make some additional comments concerning the production of the second lot of fabric, a lot that required: € 800 of wool, € 250 of direct labor and € 150 of energy (entries 6 to 16''). What is important to note is the fact that, in addition to the above mentioned € 1,200, other € 1,100 of industrial costs were debited to the WIP of Fabric account (entry 13). This is because a lot of yarn was completed when the production of the second lot of fabric was still in progress. Thus, since yarn is used as input to produce fabric, as soon as the lot of yarn was completed its industrial cost of € 1,100 was immediately debited to the WIP of Fabric account. However, this does not mean that the second lot of fabric will be charged by this extra cost (a fact that would be wrong since this yarn will be used in a subsequent productive process), as signaled by the non-null settlement of the Yarn Variation account that correctly rectify the extra cost (entry 16). Indeed, as above mentioned, Inventory Variations must be closed in WIP just before WIP is closed in the Profit & Loss Statement (or in a subsequent WIP account).

Accordingly, the entries of Table IV are made.

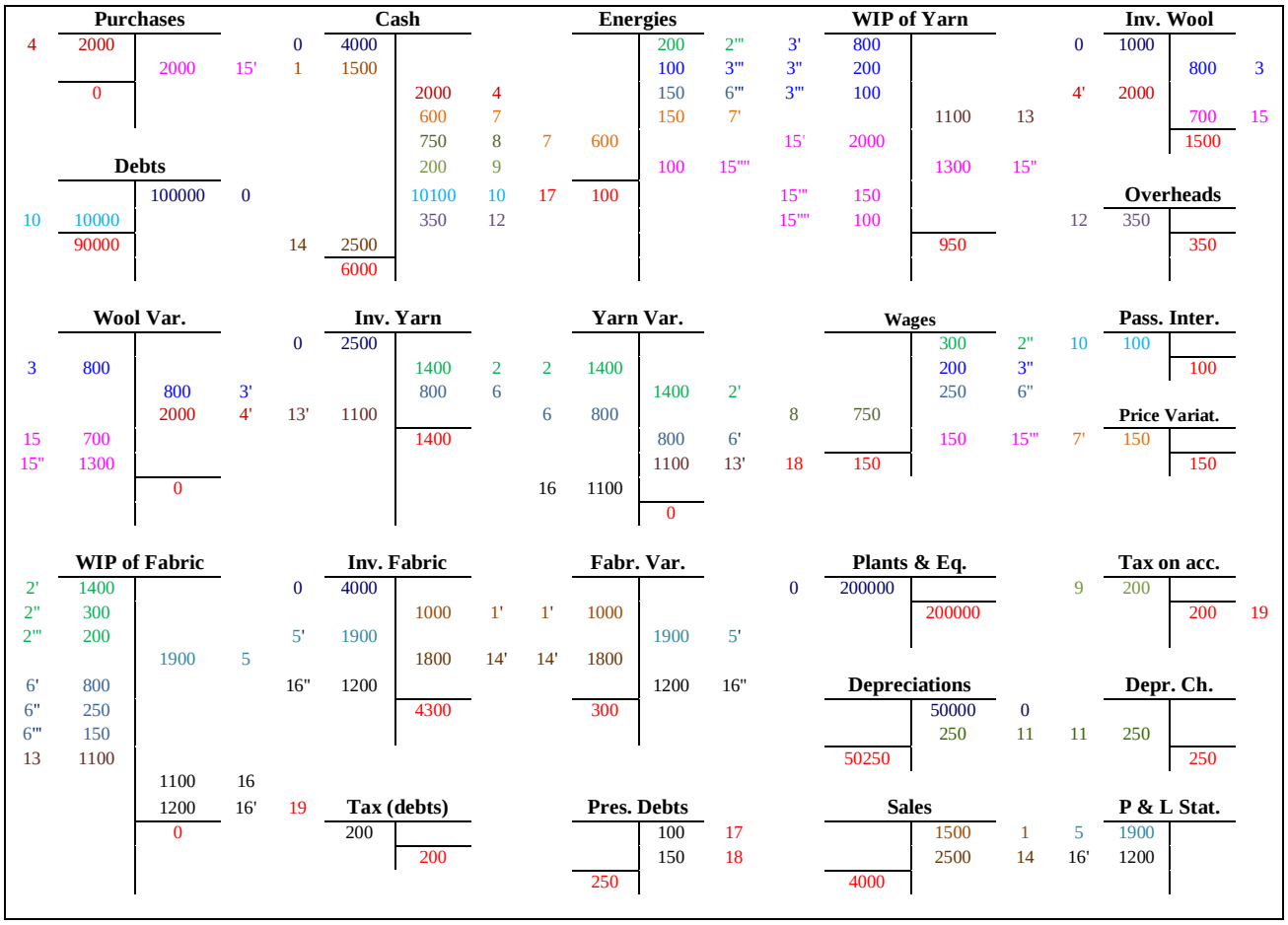

Fig. 6: Double bookkeeping entries of the woolen mill

TABLE III: Accounting diary

Transaction		Account Name		Debit	Credit
(6) Production launch of a second lot of fabric	(6)	Yarn Variations to		800	
			Inventory of Yarn		800
	(6')	WIP of Fabric to		800	
			Yarn Variations		800
	(6")	WIP of Fabric to		250	
			Wages Expenses		250
	(6"')	WIP of Fabric to		200	
			Energies		200
Other transactions	…	…	…	…	…
(13) End of production of yarn	(13)	WIP of Fabric to		1,100	
			WIP of Yarn		1,100
Other transactions	-	- …	…	…	…
(16) End of production of 2nd lot of fabric	(16)	Yarn Variations to		1,100	
			WIP of Fabric		1,100
	(16')	P&L Statement to		1,200	
			WIP of Fabric		1,200
	(16")	Inventory of Fabric to		1,200	
			Variations of Fabric		1,200

Another interesting feature of the system is the use of a Price Variations account, which is also a peculiarity of most of the MAS today in use. As soon as a lot is launched into production, the corresponding WIP account is

debited of all the industrial costs (wages and energy in the example) and so, although we did not say it explicitly, *standard costs* must be used, since the actual manifestation of these costs will take place at a later time. Thus the Price Variations account is introduced to record possible variations (differences) between standard and actual costs. An example is given by entry (7) and (7') that correspond to the payment, by cash, of an energy bill of € 600. In this case: € 600 are debited to Energies and credited to Cash, but, since the standard costs added up to € 450, extra € 150 are debited to Price Variation and credited to Energies. For the same reason, before computing the Profit & Loss Statement and the Balance Sheet, the active settlements of the Wage Expenses and of the Energy accounts (€ 150 and € 100, respectively), must be closed in the Presumed Debt account (entries 17 and 18), since these values are standard prices that have not been paid, yet.

Lastly, closing all the accounts, the Profit & Loss Statement and the Balance Sheet of Fig. 7 are obtained:

P&L Statement				**Balance Sheet (1)**			
First Lot	1900	4000	Sales	Cash	-6000	90000	Long Term Debts
Second Lot	1200	300	Increases of	Wool	1500	50250	Depreciation Fund
WIP of Yarn	950		Fabric	Yarn	1400	250	Short Term Debts
Price Var.	150			Fabric	4300		
Deprec. Charge	250			Tax Credits	200	61500	Equity
Overheads	350			Plants & Eq.	200000	-600	Loss
Interests	100						
Net Profit	**- 600**						

Fig. 7: Obtained P&L Statement and Balance Sheet of the woolen mill

Please note that, since there has been a loss, no taxes were expected to be paid. Thus, the prepayment of € 200 has been converted into Tax Credits (as shown by entry 19).

We conclude this section showing how the same transactions would have been recorded by a standard EFAS. The full list of the entries is shown in Fig. 8 where, for the sake of clarity, the same numeration of Fig. 6 has been maintained. Obviously, since EFAS keeps track only of the external transactions, some numbers are missing; this explains the presence of some jumps in the numbering used in Fig. 8.

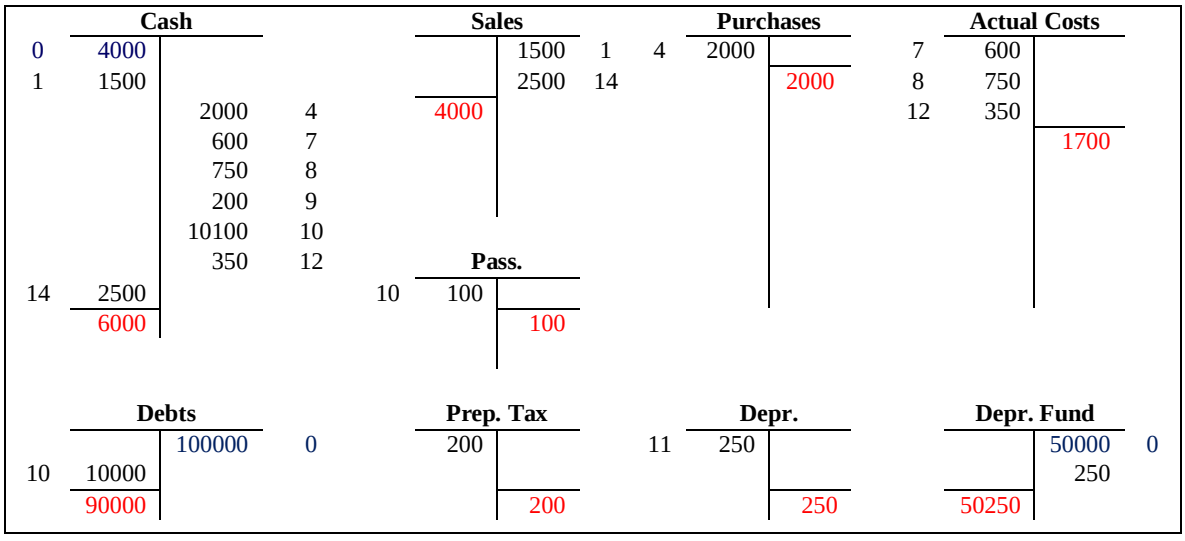

Fig. 8: The entries registered by EFAS

From the settlements of the accounts shown in Fig. 8, using the same variations of the stocks (identified with the integrated system) and considering the expected costs of € 250 (for wages and energy) as accrued costs in the Balance Sheet, the prospects of Fig.9 can be finally obtained:

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P&L Statement				Balance Sheet (1)			
Purchases	2000	4000	Sales	Cash	-6000	90000	Long term Debts
Red. of Yarn	1100	500	Increase	Wool	1500	50250	Depreciation Fund
Act. Costs	1700		of Wool	Yarn	1400	250	Accrued Costs
Exp. Costs	250			Fabric	4300	61500	Equity
Depr. Charge	250	300	Increase	Plant &	200000	-600	Loss
Interests	100		of Fabric	Tax	200		
Net Profit	**-600**						

Fig. 9: The P&L Statement and Balance Sheet obtained through EFAS

As can be seen, although characterized by a slightly different structure, the obtained prospects are absolutely consistent with the ones obtained with the proposed integrated system. Indeed, it is easy to operate a reclassification of the obtained prospects, so as to switch from one configuration to the other one.

5. Conclusions

This paper presented a novel MAS, which extends to a modern manufacturing firm the patrimonial system introduced by De Dominicis. More specifically, the proposed MAS is entirely organized in double entry bookkeeping and it is totally integrated with EFAS. Conversely, other MAS proposed so far are not perfectly consistent with EFAS and so they are not easy to be used by an accountant accustomed to EFAS, especially in case of small or micro firms. Conversely, as demonstrated through two case studies, our MAS resolves this criticality by means of the insertion some supplementary accounts, referring to the variations of the inventories, which ensure the integration and the formal coherence of the accounting system.

Also, and perhaps more important, we have shown that the proposed MAS allows tracing production costs even in complex manufacturing systems. For the sake of simplicity, this feature has been demonstrated considering a sequential manufacturing process with a single input and a single output. However, the system can be enlarged without difficulty to a case with several inputs; to this aims it is sufficient to add an Inventory and of Inventory Variations accounts for each additional input of the manufacturing system. Similarly, in case of multiple outputs there is the need to add an adequate number of WIP accounts and the allocation of the inputs, among the WIP accounts, should be made through the use of appropriate cost drivers.

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